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# Report



OF THE OPERATIONS OF THE

# Engineer Department

OF THE DISTRICT OF COLUMBIA

FOR THE YEAR ENDED

JUNE 30

1914

UNDER THE DIRECTION OF

LIEUT. COL. CHESTER HARDING

Corps of Engineers, United States Army Engineer Commissioner, District of Columbia





WASHINGTON

1914

THE NEW YORK
PUBLIC LITT ARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS
R 1916



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# EXTRACT FROM THE REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE FISCAL YEAR ENDED JUNE 30, 1914.

# OFFICE OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA, Washington, November 14, 1914.

To the Senate and the House of Representatives of the United States of America in Congress assembled:

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 U.S. Stats., 108), a report of the official doings of that government for the fiscal year ended June 30, 1914.

# ROADWAY PAVEMENTS.

The sum of \$558,000 was appropriated for expenditure during the year in paving new roadways and resurfacing and repairing old roadway pavements, and the sum of \$241,350 for the construction of suburban roads. For paving sidewalks and alleys \$220,000 was appropriated, for the construction and repair of bridges \$142,600 was appropriated, for grading streets, alleys, and roads \$15,000 was appropriated, and for constructing sidewalks and curbs around public reservations and Government buildings \$14,000 was appropriated. The sum of \$140,569 was expended for repairing pavements disturbed in connection with underground construction work. The total of these expenditures aggregates \$1,330,919. In paving work, sheet asphalt, asphalt block, and asphaltic concrete were used.

The prices paid for new sheet-asphalt pavement, asphalt block, and asphaltic concrete pavement were as follows:

-	Per square	yard.
	ring sheet-asphalt pavement (21-inch asphalt surface, 2-inch binder, before ompression), with 6-inch concrete base	1 00
		1. 37
Lay	ring bituminous concrete pavement on 6-inch concrete base	1.64
Lay	ring hituminous concrete pavement, on broken-stone base	. 97
Lay	ring 2-inch asphalt block pavement, with 6-inch concrete base	1. 79
7	The prices for the fiscal year 1915 are as follows:	
	Per square	yard.
Lay	ring sheet asphalt pavement (21-inch asphalt surface, 2-inch binder, before	
Ċ	ompression), with 6-inch concrete buse	1. 78
Lay		1. 35
Lay	ing asphaltic concrete pavement (2 inches thick after compression), on	
	inch concrete base	1. 70
Lay	ing asphaltic concrete pavement (2 inches thick after compression), on	
b	roken-stone base.	. 96

No contract has been made for the fiscal year 1915 for laying asphalt block, as the only bid received was from a contractor who bid to furnish block not manufactured in the city of Washington,

where the work of manufacture could be kept under proper super-The matter of letting a contract for this class of work for 1915 has therefore been held in abevance.

The current prices for resurfacing and repairing asphalt pavements.

under contract, during the year were as follows:

Laying sheet-asphalt pavement (2)-inch asphalt surface, 2-inch binder, before	
compression), with 6-inch concrete baseper square yard\$1.	
	64
Laying sheet-asphalt surface (resurfacing by heater method)per cubic foot	66
	38
Laying sheet-asphalt surface (for repairs and miscellaneous work, cuts, etc.),	
	57
Laying asphalt binder (for repairs and miscellaneous work, cuts, etc.), per cubic foot	43
Laying sheet-asphalt surface for repairs, etc., within the space required by law	
	63
	03
Laying asphalt binder for repairs. etc., within the space required by law to be	
kept in repair by street railway companiesper cubic foot	48
A new contract for a period of two years, beginning July 1, 191 was let at the following prices:	4,
Laying sheet-asphalt pavement (21-inch asphalt surface, 2-inch binder, before compression), with 6-inch concrete baseper square yard. \$1.60	65
Laying sheet-asphalt surface (24 inches before compression)dodo	12
Laying asphalt binder (in connection with resurfacing work)per cubic foot	26
Laying sheet-asphalt surface (for repairs and miscellaneous work, cuts, etc.),	
per cubic foot	7
Laying asphalt binder (for repairs and miscellaneous work, cuts, etc.),	
per cubic foot	19
Laying sheet-asphalt surface for repairs, etc., within the space required by law	-
to be kept in repair by street railway companiesper cubic foot	2
to be kept in repair by street railway companiesper cubic foot	-

Sheet asphalt continues to be the leading type of roadway pave-ment constructed in the District of Columbia, but the use of asphaltic concrete is being increased. A limited amount of asphalt block laid on a concrete base and of a cement roadway pavement with a thin bituminous skin treatment has been laid. No additions were made during the year to the areas of roadways resurfaced by the heater method.

Laying asphalt binder for repairs, etc., within the space required by law to be 

Laying asphaltic concrete surface (in connection with resurfacing work), per cubic foot.....

Table showing square yards and mileage of roadway pavements to June 30, 1914.

	Square yards.	Miles.
Sheet asphalt and coal tar	2,857,464 632,641	151.00
Bifuminous concrete on concrete base	60, 557 51, 088	3.48 2.66
Cement concrete. Granite and rubble.	469,980	1.66 25.58
Vitrified block Cobble Macsdam (estimated)	1 82.121	1.34 4.12 122.12
Gravel and unimproved	204.517	1 166, O
Gutters on bituminous concrete street; Pavements maintained by street railroads	9, 575 556, 750	
Total	6, 949, 693	509.9

.44

1.63 . 93

# MUNICIPAL ASPHALT PLANT.

The portable municipal asphalt plant which was authorized to be purchased and operated in the appropriation acts for the fiscal years 1913 and 1914 was operated during the year, with results in compliance with the requirement of law that the work done should be economically performed as compared with similar work previously done under contract. Under the law this plant is operated under the immediate direction of the commissioners in doing such work of resurfacing and repairs to asphalt pavements, in the repair of macadam streets by constructing asphalt macadam wearing surface as in the judgment of the commissioners may be economically performed by the use of the plant, but the commissioners are prohibited from doing more work of resurfacing and repairs than can be accom-

The total output of the plant during the year was 172,128 cubic A large portion of this output was obtained from the use of suitable old surface material removed from streets being resurfaced, to which new asphaltic cement and other material were added. The cost of crushing this old material amounted to \$1.04 per cubic yard, or about 4 cents per cubic foot. Included in this figure was a suitable allowance for interest on the investment, maintenance, and 20 per cent obsolescence. The plant was in operation 232 working days, the average daily output being 742 cubic feet. The cost of operation of plant, hauling material to the streets, cutting out the old pavement to be replaced, laying the new pavement, including fuel charges both at the plant and on the street, averaged 21.8 cents per cubic foot. Of this cost 5 cents represents labor and fuel at the plant, 3.8 cents represents haul to the street, and 13 cents represents placing the material on the street. The overhead charges were the cost of supervision, 31 cents per cubic foot, maintenance of plant, interest on the investment, and 20 per cent obsolescence, making a total on this account of 1.6 cents per cubic foot. The sharpening of tools averaged one-half cent per cubic foot. The total of these charges, constituting

By adding to the above charges the various material costs, the cost of different mixtures laid on the street was as follows: Top mixture, using Bermudez cement, 47.4 cents per cubic foot, as compared with the contract price of 57 cents per cubic foot; binder, 38.2 cents per cubic foot, as compared with the contract price of 43 cents per cubic foot.

the cost of the plant output, exclusive of material, was 27.4 cents

The elements of rental value of site of plant, taxes, and contractor's

profit are not considered in these costs.

plished with this one plant.

per cubic foot.

The operation of this plant has demonstrated its economy as a small plant, but it is less economical than a larger permanent plant would be. The work of repairing asphalt pavements, except where the roadway is entirely resurfaced, is done by the use of this plant instead of by contract.

#### SUBURBAN STREETS AND ROADS.

The work done under this heading during the year was as follows:

Construction of suburban roads	140, 000
Grading streets, alleys, and roads	15, 000 67, 000
Total	376, 350

A considerable quantity of cement roadway was laid on suburban streets, the paving consisting of a cement base 6 inches thick, covered with a thin surface coat of tar. This class of pavement is proving very satisfactory, and is being constructed at a much less cost than sheet asphalt or asphaltic concrete on cement base. The resultant roadway surface is more easily kept in repair than a macadam roadway. It is intended during the coming year to reduce the base of this pavement to 5 inches in thickness, but to use a richer mixture.

The use of bituminous concrete, both on a concrete base and on a macadam base, was continued, as this class of work appears to be the best suited to heavy suburban traffic.

. Approximately \$30,045 was expended for oiling and tarring suburban roadways, and \$2,344 was expended for sprinkling roads which

could not be oiled.

At the close of the fiscal year the mileage of improved roads and streets in the District outside of the limits of the city of Washington, but not including those paved with granite block, sheet asphalt, or asphalt block, was as follows:

	Miles.
Bituminous concrete roadway	3. 75
Bituminous macadam roadway	4.36
Cement roadway	1.66
Macadam roadway	109.55
Gravel roadway	49. 00
Total	368. 87

## SIDEWALKS AND ALLEYS.

The sum of \$220,000 was expended for paving sidewalks and alleys, and the sum of \$14,000 for sidewalks and curbs around Government reservations and Government buildings. Of the first-named amount one-half of the cost is assessed against private property. No assessment is made for the work adjacent to Government parks and buildings. The sidewalks are constructed of cement, under contract, and the alleys are paved with vitrified or asphalt block, the work being done by day labor under the direction of the commissioners. The total amount of alley pavement laid was 14,683 square yards of vitrified block, and 7,734 square yards of asphalt block, both on a gravel base. During the year the experiment was made of using vitrified block manufactured at the District Workhouse at Occoquan, Va., where prison labor is used for the production of the material. It is expected that there will be an increase of the use of this material during the year.

The prices paid under contract for laying cement sidewalks during the year were as follows:

For the fiscal year 1915, the prices are as follows:

The initiative in the matter of paving sidewalks and alleys is generally left with the owners of abutting property, the commissioners requiring a majority petition for such work before it is ordered. Exceptions are made, however, in cases where on account of public danger or other public reason the paving is demanded. The law requires the commissioners to advertise for two weeks their intention to lay sidewalks and curbs and to pave alleys, and to give a hearing to the property owners interested. The work is ordered subsequent to such hearing, when in the opinion of the commissioners it is necessary for the public safety, health, comfort, and convenience. The demand for this class of construction is constant, and increased appropriations for this work could advantageously be expended.

#### BRIDGES.

Contract was let during the year for the construction of a bridge across Rock Creek on the line of Q Street NW., and work under this contract is now in progress.

Bids have been received for the construction of a bridge across Rock Creek on the line of Pennsylvania Avenue NW., and the work

will be contracted for during the fiscal year 1915.

Smaller bridges were constructed during the year as follows:

A rock-faced bowlder bridge across Rock Creek in the Zoological Park, for which an appropriation of \$20,000 was made in the sundry civil act for the fiscal year 1912, with a proviso that the work should be done under plans prepared by the engineer of bridges of the District of Columbia. This was a steel-concrete bridge having a clear span of 80 feet, and was constructed at a cost of \$13,637.36, exclusive of roadway, footways, and approaches.

Three steel-contrete bridges were also constructed over Watts Branch at Deane Avenue, Grant Street, and Forty-eighth Place, NE.

The sum of \$17,000 was expended in the construction and repair of bridges. The principal work done was in reflooring the Anacostia Bridge draw span; the Chain Bridge; the Pennsylvania Avenue Bridge across the Anacostia River, and the M Street Bridge over Rock Creek. The bridges over James Creek Canal at M and N Streets were removed and the canal between these points filled.

Appropriations are needed in the near future for the replacement of the Aqueduct Bridge across the Potomac River, the Calvert Street Bridge across Rock Creek, and the replacement with permanent floor construction of the timber floors on the M and P Street Bridges across Rock Creek. The smaller bridges now having wooden floors should

also be provided with permanent floors.

#### ELIMINATION OF SUBURBAN GRADE CROSSINGS.

An appropriation of \$110,000 has been made for the elimination of the railroad grade crossing at Bennings, D. C., and plans for this work are being prepared. All railroad grade crossings have been eliminated within the city limits, and the above-named appropriation will provide for the elimination of one of the most dangerous crossings now existing outside of the city limits on a much-traveled road.

#### UNION STATION PLAZA.

The central island on the Plaza in front of the Union Station was improved by a plan which called for a grass treatment combined with such nec ssary walkways as was deemed necessary to give convenient access to the station. These walkways were constructed of a good quality of red vitrified brick, which, combined with the green of the grass, gives a very pleasing effect. The masonry construction on the Plaza connected with the fountains was cleaned and the three large flag staffs were painted.

# SURVEYOR'S OFFICE.

The work done under this office is of two classes, that done for private parties and that done for the District of Columbia and the United States. The work done for private parties is paid for by fees. The receipts of fees during the fiscal year amounted to \$13,535.90, as compared with \$16,608.32 for the preceding year. This decrease is no doubt due to the general building depression which prevailed during the year.

Among the large surveys made for the United States and the District of Columbia, were those in connection with the reclamation of the Anacostia River and Flats; a topographical survey of land for reformatory at Occoquan, and for land for an addition to the Zoological Park. This office made a number of surveys under the excise law.

The total number of new blocks or squares created in subdivisions of agricultural land was 59, and the number of new lots 2,706. This

was an increase over the preceding year.

This office also made the surveys for the acquisition of small parks at the intersection of streets outside of the limits of the original city, for which two appropriations of \$25,000 each are available. Condemnation proceedings were instituted for obtaining eight such small parks, and these proceedings are now pending. The eight parks will probably use up the first appropriation of \$25,000. No selections

have yet been made under the second appropriation.

Under the appropriation of \$2,500 made for surveys of old subdivisions during the year, comprehensive surveys were made of Takoma Park; Harlem; Wisconsin Avenue from R Street to Thirty-fifth Street; Petworth and Brightwood Park; Georgia Avenue; between Rock Creek ('hu ch Road and the District line; Palisades of the Potomac; Woodley Road and Cathedral Avenue, north of Woodley Park; Lincoln and Twining City, and square 2588. The work will be of great advantage to the office in making accurate surveys of squares and lots in the localities mentioned.

# STREET AND ALLEY EXTENSIONS.

The general authority granted the commissioners to open streets in conformity with the plan for a permanent system of highways in the District appropriation act approved March 4, 1913, has greatly facilitated the acquisition of streets, as it is possible to proceed with a number of important street extensions and widenings without waiting for special legislation, as has been the case in the past.

The Code of Law for the District of Columbia gives the commissioners general authority to open, widen, and extend minor streets

and allevs.

Under both of the laws referred to the total cost of acquiring the land, including the expenses of the condemnation proceedings, is paid from revenues of the District of Columbia and assessed against

property benefited.

There were filed in court during the year 15 cases for widening and extending alleys, and 28 cases for the widening of streets and the condemnation of land for parks. Other cases will be filed when in the judgment of the commissioners the public interests require such condemnation.

# TREES AND PARKINGS.

The number of trees planted on streets, in school yards, and on playgrounds during the year was 2,287, and the number of trees

removed 2,503, making a net decrease during the year of 216.

The total number of trees planted along streets, in school yards, and on playgrounds at the close of the fiscal year was 102,343. Of this number 101,912 are curb trees on streets. There are 289.52 miles of streets on which trees have been planted, the mileage not having been increased during the year. The trees are planted on both sides of the street, and the mileage is based on 352 trees per mile. The amount expended in the planting and care of trees was \$43,151.55. The varieties of trees planted were elms, gingkos, lindens, Norway,

sugar, and silver maples, pin and red oaks, and sycamores. There was a decrease in the work of planting young trees on recently improved streets and filling of vacancies in existing tree spaces, due to the fact that a large portion of the appropriation had to be spent for replacing trees blown down by a severe storm during the year. Likewise, little progress was made upon the general trimming of street trees. A considerable portion of the appropriation was used in spraying the trees, which became infested during the midsummer with the fall webworm, tussock moth, and the elm leaf beetle. total number of trees sprayed during the year was 28,773, and the total number of trees treated for insects by kerosene emulsion for the purpose of destroying an elm tree scale was 2.064.

In addition to caring for the trees unfenced public parkings were mowed during the year for the purpose of ridding them of weeds.

#### STREET AND ALLEY CLEANING.

The street and alley cleaning division serves a population of about 353,297 and covers an area of approximately 70 square miles. It has charge of the cleaning of all streets, avenues, and alleys in the District of Columbia, except such work on the outlying county roads and suburban streets as is done under the supervision of the superintendent of county roads. The work is done under the mmediate supervision of the superintendent of street and alley cleaning, who also has supervision over the collection and disposal of city refuse, which work is done under contract.

The work of street cleaning involves flushing, squeegeeing, machine

and hand cleaning, and dust prevention.

The daily cleaning of all streets in the central portions of the city by the hand patrol amounts to about 3,524,700 square yards. This is an increase of 711,700 square yards over the area cleaned during the fiscal year 1913. Approximately 260 men are employed daily in this work. The cleaning of all paved streets outside of this area is done every other day or every third day, depending upon the location and the traffic. At the beginning of the fiscal year the territory covered by machine cleaning amounted to 2,225,000 square yards. Of this amount, however, 1,603,000 square yards were, on April 16, 1914, taken from the machine cleaning territory and added to the hand patrol territory. In addition to the hand cleaning, nearly all of the smaller paved streets in the hand patrol area are squeegeed two or three times a week, and in addition, all cobblestone, granite and asphalt block pavements and the poorly paved streets are flushed by the use of pneumatic flushing machines, which cover a territory of 374,050 square yards about once in four or five days.

In the suburban portions of the city the surface of practically all the unpaved suburban streets is covered with emulsion road oil, the

entire area being covered about 10 times during the year.

This division also cleans all paved alleys in the District of Columbia once a week, there being an increase in the area cleaned during the year from 1,060,000 square yards on July 1, 1913, to 1,079,959 square yards on June 30, 1914. The cleaning of all macadam, gravel, and unpaved streets in the suburban section and the unpaved alleys, is accomplished about once every 10 days, and the area cleaned increased during the year from 1,481,525 square yards to 1,514,180 square yards.

The appropriation for cleaning streets and alleys was decreased \$5,000 under the amount appropriated in the previous fiscal year, but in spite of this reduction the records of area cleaned show a consider-

able increase over the figures for the previous year.

The methods regarding snow and ice cleaning were considerably changed during the year. Previously no snow was hauled except from street railway intersections, but during the last winter the removal of snow from the streets was carried on day and night. It is estimated that this approximated 160,000 cubic yards of snow. This was removed from the business sections of the city, in addition to the work of opening cross walks, sidewalks, and gutters of the surrounding territory.

The cost of work done during the year per 1,000 square yards is as

follows:

Hand patrol	<b>\$0.14</b>
Machine cleaning	. 156
Alley cleaning	. 337
Squeegeeing	. 121
Squeegeeing. Flushing.	. 232

# REMOVAL OF CITY REFUSE.

Forty-eight thousand nine hundred and twenty-seven tons of garbage, 255,358 cubic yards of ashes, 141,683 cubic yards of miscellaneous refuse, 15,514 barrels of night soil, and 19,148 dead animals were removed under contract during the year. The contract prices for this service are as follows:

		Per annum.
Garbage		
Ashes Miscellaneous refuse		. 73, 150 17 000
Night soil		. 16,600
Dead animals	• • • • • • • • • • • • • • • • • • • •	. 2,855
The unit costs are as follows:	•	

Garbageper ton	<b>\$</b> 1, 39
Ashusper cubic yard	. 29
Miscellaneous refusedo	. 12
Night soil per barrel	. 96
Night soil per barrel Dead animals per animal	. 149

The contracts for the removal of garbage, ashes, and miscellaneous refuse which were entered into for a period of five years from July 1, 1910, expire June 30, 1915, and proposals were asked for new con-

tracts for periods of one, three, and five years.

The District appropriation act for the fiscal year 1915 contained an appropriation of \$7,500 for the purpose of investigating and reporting upon the collection and disposal of garbage and other city wastes, including the preparation of plans and specifications for the construction of disposal buildings, and contract has been made for making this investigation. It will probably not be practicable, even if municipal collection and disposal of this refuse is recommended, to have plants in operation before the expiration of the present contracts, and it was with this object in view that bids were invited for carrying on the work after July 1, 1915.

These bids were received October 15, 1914, and the commissioners

decided to award contracts as follows:

To collect and dispose of ashes for a period of one year from July

1, 1915, at the price of \$69,000.

To collect and dispose of garbage, miscellaneous refuse, and dead animals for a period of three years from July 1, 1915, at the following prices per annum: Garbage, \$69,840; miscellaneous refuse, \$28,400; dead animals, \$2,988.

# BUILDING OPERATIONS.

The estimated value of building construction, including repairs, during the year but not including buildings under construction by the United States Government, was \$9,544,302. This shows a decrease under the preceding year of \$699,446.

The number of permits issued for buildings, building repairs, awnings, signs, engines, motors, elevators, etc., was 5,644, a decrease of

650 under the preceding year.

The number of dwelling houses constructed was 1,161, a decrease of 379 under the preceding year; the number of business buildings

constructed was 301, an increase of 5 over the preceding year; the number of apartment houses was 34, an increase of 20 over the preceding year; the number of buildings repaired was 4,019, a decrease of 227 under the preceding year. The total number of new buildings erected during the year was 1,496, a decrease of 354 under the preceding year.

The distribution of the cost of these improvements, including

repairs to existing buildings, is as follows:

Section.	Buildings.	Repairs, etc.1
Northeast Southeast Northwest Southwest County	150, 506	\$100, 523 56, 383 1, 077, 116 37, 904 415, 561
Total	7, 830, 563	1, 687, 489

<sup>&</sup>lt;sup>1</sup> Does not include awnings, fire escapes, or signs, cost of which is estimated. Total for buildings, repairs, etc., 39,544,302.

It is estimated that there are 61,004 brick buildings and 26,089 frame buildings in the District of Columbia, of which number 1,214 brick buildings and 248 frame buildings were constructed during the year.

It will be noted that there was a general decrease in building oper-

ations in this city during the year.

By authority of law the commissioners fix a schedule of fees for permits issued by the inspector of buildings, the object being to make the office self supporting. The fees so collected during the year amounted to \$25,005.61, a decrease under the fees for the preceding year of \$1,412.10. The expenses of the office were \$34,594.02. The receipts, therefore, did not meet the expenditures by the sum of \$9,588.41. In anticipation of this loss of revenue the commissioners adopted an amendment to the building regulations, which took effect April 1, 1914, requiring fees to be paid for the inspection of elevators, theaters, and other places of public amusement and buildings falling within the scope of the fire-escape law. It is estimated that fees from this source will add about \$5,000 annually to the receipts.

Amendments were made to the building regulations during the year to insure better construction and better protection for workmen. These regulations prohibited the construction of long narrow tenement houses with insufficient light and air, and provided for additional safety to iron workers engaged in the erection of skeleton steel build-

ings.

## FIRE ESCAPES.

The building office is continuing inspections and taking other action necessary to enforce compliance with the law requiring the erection of fire escapes and fire-prevention apparatus in buildings coming within the scope of the law. The records show a greater number of cases of compliance with this law than in any preceding year.

#### ELEVATORS.

The elevators in the District of Columbia are inspected by two inspectors under the direction of the inspector of buildings. The number of passenger elevators installed during the year was 42 and the number of freight elevators 26, a total of 68. Elevators are inspected quarterly, and the total number of inspections made during the year by the two inspectors aggregate 2,984, of which 114 were in buildings under the control of the United States Government.

Under a requirement of the building regulations elevator operators are required to pass an examination and be licensed. The number examined during the year was 365, of which number 31 failed. A fee of 50 cents is charged each applicant examined, and the revenue from

this source was \$182.50.

# INSPECTION OF PRIVATE BUILDINGS.

All private building construction in the District of Columbia is inspected under the direction of the inspector of buildings. The total number of such inspections during the year was 65,668, a decrease of 8,425 under the preceding year. This is an average of 23.4 inspections daily for each field inspector, as compared with an average of 27.4 during the preceding year. The work of inspection, however, was more widely scattered.

# INSPECTION OF STEAM BOILERS.

The number of steam boilers inspected by the inspector of steam boilers during the year was 512. The compensation of this official is received from fees paid by the owners of the boilers. The total amount reported by the inspector as received from fees during the year is \$2,265, and the expense of inspection \$452.10, leaving a net compensation of \$1,813.90.

# CONSTRUCTION OF MUNICIPAL BUILDINGS.

During the year eight buildings were under construction, under the direction of the municipal architect, as follows:

Building.	Location.	Cost.
Repair and storage building for fire de- partment.	North Carolina Avenue, between Sixth and Seventh Streets SE.	\$14, 151.00
Alterations and additions to Birney School No. 127.	Nichols Avenue, between Franklin Street and Howard Avenue, Anacostia, D. C.	48, 160. 23
Alterations and additions to Congress Heights School No. 111.	Nichols Avenue and Hamilton Road, Congress Heights, D. C.	83, 408. 09
Shelter sheds for farmers' produce mar- ket.	Open space, between Tenth and Twelfth, B and Little B Streets NW.	11,769.00
New Central High School No. 173	Square, bounded by Eleventh and Thirteenth Streets, Florida Avenue and Clifton Street.	1,030,450.00
Alterations for accommodation of holler and coal vault for District of Columbia iail.	Reservation No. 13, Nineteenth and B Streets SE.	13, 644. 60
Extension colored men's ward and din- ing room, Home for Aged and Infirm,	Blue Plains, D. C	22, 387. 00
Normal School Nc. 169 (colored)	Georgia Avenue, between Howard Place and Fairmont Street NW.	193, 178. 00
Total	•••••	1, 367, 147. 92

Plans for the colored high school, an appropriation for which was made at the same time as that for the Central High School, have been prepared, and the building will be under construction during the present calendar year. It is anticipated that this building will be completed and ready for occupancy at about the same time as the Central High School.

# REPAIRS TO MUNICIPAL BUILDINGS.

All municipal buildings are kept in repair by the superintendent of repairs, under the direction of the municipal architect.

The appropriation for repairs and improvements to school build-

ings and grounds for the year was \$100,000.

For repairs to engine houses and grounds \$16,000 was appropriated and expended, and for repairs and improvements to police stations and grounds \$5.500 was appropriated and expended.

# CONDEMNATION OF INSANITARY BUILDINGS.

The board for the condemnation of insanitary buildings examined 284 buildings during the year, of which 107 were ordered demolished and 177 repaired; of those ordered demolished 36 were in alleys and 71 on streets; of those ordered repaired 54 were in alleys and 123 on streets.

The total number of buildings examined by the board since its creation by act of Congress approved May 1, 1906, to the end of the fiscal year was 3,362, of which 1,925 were ordered demolished, 1,322 ordered repaired, and on which action on 115 cases is pending. Of those which have been ordered demolished within this period, 639 were in alleys and 1,286 in streets, and of those ordered repaired 430

were in alleys and 892 in streets.

The estimated number of tenants required to obtain new dwellings in streets and in alleys through the action of the board during the year is 281, and the total since the creation of the board, 5,574. has only been necessary for the board to use the appropriation available for doing the work of demolishing in two cases during the year. In the other cases mentioned the owners have complied with the orders of the board. The alley houses now remaining are in a fairly good state of repair and their condemnation under the law is not warranted.

Special attention has been given to buildings not provided with sewer and water connections with a view of the elimination of box privies by requiring the owners to make such connections or remove the building if the conditions did not warrant the expense of con-

necting it to the public sewer or water main.

# PLUMBING AND PLUMBING INSPECTION.

During the year the plumbing office made 37,177 inspections, which showed a decrease under the preceding year, when the number of inspections was 41,644. This decrease is due to the decrease in the number of new buildings constructed, and a great decrease in the amount of repairs and remodeling of plumbing. It is estimated that

the total cost of new plumbing work installed during the year was \$755,000, and of repairs and remodeling to old plumbing \$340,000. The average number of inspections per day per man was 17. Fiftynine cases of violation of the plumbing regulations were prosecuted in the police court.

Under the compulsory drainage act 61 cases were installed by the plumbing office, and the sum of \$833.18 was expended in installing plumbing in private premises, which sum was assessed against the

various properties as provided by law.

# PUBLIC CONVENIENCE STATIONS.

Three public convenience stations are in operation. They are located at Seventh Street and Pennsylvania Avenue NW., Thirteenth Street and Pennsylvania Avenue NW., and Ninth and K Streets NW. These stations were operated for a period of 18 hours per day.

During the year the patrons of the stations numbered 1,879,258.

The receipts from the pay compartments aggregated \$2,894.38.

In addition to the stations maintained by the commissioners, the Office of Public Buildings and Grounds has constructed in public parks four park lodges equipped with toilet facilities.

#### PLUMBING BOARD.

During the year the plumbing board held 40 sessions for examination of candidates for license as master plumbers and gas fitters. Fifty-five applicants were examined. Of this number 24 were original candidates, of whom 6 passed and 18 failed, and 31 had been previously examined, of whom 7 passed and 24 failed.

#### STREET LIGHTING.

There are 17,335 street lamps of all kinds in the District of Columbia, as follows:

Mantle, gas  Electric, arc  Electric, incandescent  Street-designation lamps		1, 111 5, 546
Total	7	7 225

This was an increase during the year of 662 lamps of all kinds. Improved incandescent electric lighting was extended on approxi-

mately 9 miles of streets during the year, involving the erection of

600 lamps of 100 candlepower each.

The appropriation act for the fiscal year 1912 required that all inclosed arc lamps in service on July 1, 1911, be replaced with either 4-ampere magnetite lamps, or some other form of improved lighting, the changes to be made at the rate of not less than 400 lamps per annum, and to be completed by April 1, 1914. In compliance with this act there has been so replaced during the three years ending April 1, 1914, 1,203. During the year the lighting of Pennsylvania Avenue NW. from First to Fifteenth Streets was changed, 6.6-ampere arc lamps being used on ornamental posts.

# FIRE ALARM, TELEGRAPH, AND TELEPHONE SERVICE.

About 71 miles of underground cable were installed during the year, the amount in service on June 30, 1914, being about 131 miles. The amount of acrial cable was not increased during the year, the amount in service on June 30, 1914, being 6.21 miles.

Twelve new fire-alarm boxes were placed in service during the year.

making the total number at the end of the year 562.

The number of fire alarms received and transmitted during the year

was 1,366, of which 71 were false.

The total number of poles connected with the steam and street railroads, telephone, telegraph, electric light, and the District of Columbia telegraph and telephone service in the District of Columbia were 16,917, of which 16,113 are line poles and 804 guy poles.

The fees collected for the inspection of private electric wiring in

buildings during the year amounted to \$5,105.75.

#### PERMITS.

The permits issued by the permit clerk of the engineer department for various permits, other than those for buildings, amount to 14,958. Of this number 9,922 were covered by fees, and for 5,036 no fees were paid.

AUTOMOBILE BOARD.

The automobile board examined 3,072 persons for permits to operate motor vehicles in the District of Columbia, being an increase of 128 over those examined during the preceding year. Permits were issued to 2,430 applicants to operate vehicles of the gasoline type; 198 of the electric type; 19 of the steam type, and 269 motor cycles. One hundred and twenty-four permits to operate vehicles of the United States and the District of Columbia used in public business were also issued. Five operator's permits were revoked on the recommendation of the major and superintendent of police.

The revenue derived from fees for these permits was \$8,959, of which \$5,942 was paid by residents of the District of Columbia, and

\$3.017 by nonresidents.

The automobile board also issued 3,913 identification number tags

for motor vehicles.

# EXAMINATION OF STEAM ENGINEERS.

The board of examiners of steam engineers held 51 meetings and examined 138 applicants, of whom 49 were found competent.

# ROCK CREEK PARK.

The jurisdiction over Rock Creek Park is placed by law under the Commissioners of the District of Columbia and the Chief of Engineers, United States Army, acting jointly.

The amount appropriated for the care and maintenance of the park

during the year was \$21,000.

The principal work done during the year was the construction of walls along the approach to the bridge across Rock Creek at Pierce's mill, to replace wooden railings, at a cost of \$1,416.82; the construc-

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tion of a roadway in Piney Branch Parkway to connect Beach Drive with Seventeenth Street NW., north of Newton Street, in which \$1,377.42 was expended in grading, and the removal of fallen dead timber at a cost of \$1,664.06. In the general work of care and maintenance of the park, including mowing, repairs to roads and paths, etc., approximately \$12,000 was spent. The road across the northern end of the park, between Beach Drive and Daniels Road, was completed, thus affording a new outlet westward from the park. The macadamized roads were oiled; numerous extensions were made of bridle paths and footpaths; toilet facilities were provided for the use of those using the park, and a portion of the ground was farmed to produce feed for horses belonging to the park.

The general use of the park by the public is largely increasing, as is also the use of the roads by vehicular traffic. It is proposed to construct several new roadways across the park from east to west, and to widen as far as practicable existing roadways so as to take care of this

increase in vehicular traffic.

# ANACOSTIA RIVER AND FLATS.

The appropriation available for the reclamation and improvement of the Anacostia River and Flats from the Anacostia Bridge to the District line on September 1, 1914, was \$249,980.89. This work is being done under the direction of the Chief of Engineers of the United States Army, and at the beginning of the fiscal year 1914 the work was

approximately 5 per cent completed.

In connection with this work authority is granted for the condemnation of the water frontage on each side of the Anacostia River from the Anacostia Bridge to the District line, between high-water lines and the 10-foot contour lines, and all land in the river bed between these limits and between high-water lines, the title to which is not in the United States. Condemnation proceedings in connection with this project are now in progress.

The District appropriation act for the fiscal year 1915 also provided for an assessment of benefits for this improvement, to be determined by a jury, the measure of benefits being one-half the increased value added to abutting and adjacent property by reason of such improve-

ments.

# HARBOR FRONT.

The total amount received from the rental of wharves and river frontage placed by law under the direction of the commissioners during the year was \$26,342.20, divided as follows:

Potomac River front	
James Creek Canal	
Total	26, 342, 20

The actual water frontage in the District of Columbia devoted to commerce, with the exception of canals, is about 2 miles. The total available water frontage is about 18 miles, of which about 8 miles is set aside for parks and purposes of the United States. The largest amount of wharf property under the control of the commissioners is that along the Washington Channel. The total frontage along this channel is 9,275 linear feet, of which 4,675 linear feet between the

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grounds of the War College and the south curb line of N Street is under the control of the United States and the remaining 4,600 linear feet is under the control of the commissioners. Along this frontage are located the harbor police station, dock of the harbor boat, house and dock of the fire boat, the District morgue, two District property yards, and the municipal fish wharf and market. The lower portion of the frontage is used for river-excursion traffic and steamboat traffic between Washington, Baltimore, Norfolk, and points along the lower river, and the upper portion is used for wood, lumber yards, etc. The lease for the wharves on the Potomac River front are generally for a period of five years, most of them expiring March 15, 1918. The basis of rental is a net return of 4 per cent on the estimated value of the wharf property, with the requirement that the lessee shall make all improvements and repairs. The leases along the Anacostia River and James Creek Canal are generally for lesser periods.

The property along the Anacostia River is largely undeveloped, owing to the uncertainty of ownership of abutting land and riparian rights, and steps are being taken by legal proceedings under the direc-

tion of the Attorney General to settle the question of title.

The wharves along the Georgetown Channel of the river are privately owned, except the foot of streets. Two leases have been entered into with private parties, one for the foot of Thirty-third

Street and one for the foot of G Street.

The portion of James Creek Canal from N Street to P Street, a distance of 1,000 feet, is under lease for commercial purposes. From P Street to the outlet of the canal, on the Anacostia River, a distance of about 3,000 feet, the canal extends along the grounds of the War College and Engineer School.

# IMPROVEMENT OF THE HARBOR FRONT.

It will soon become necessary to rebuild the wharf structures along the Washington Channel, and when this is done it should be along some definite plan. The commissioners believe they should be authorized to prepare such a plan and submit it to Congress, and they have included in their estimates to Congress this year an item for this purpose. The District appropriation act for the fiscal year 1915 contained an appropriation of \$50,000 for reconstructing the wharves operated in connection with the municipal fish wharf and market, and plans and specifications therefor are in course of preparation. The market buildings on this wharf are under the control of the superintendent of weights, measures, and markets.

# SEWERS.

The length of main and pipes sewers constructed during the year was about 17; miles. The total length of main and pipe sewers in the District of Columbia on June 30, 1914, was 661.57 miles, of which 133.57 miles are main sewers and 528 miles pipe sewers. The total cost of the sewerage system to June 30, 1914, was \$12,470,940.74. The total cost of the sewage-disposal system was \$4,495,830.13, making the total cost of the complete system to June 30, 1914, \$16,966,770.87.

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Twenty-two billion six hundred and fifty-two million gallons of sewage and 417,000,000 gallons of storm water were pumped during the year through the sewerage pumping station. The pumping plant was continuously in operation without interruption of service, and received the sewage from practically the entire District of Columbia, delivering it at the outfall on the Potomac River. Nine million three hundred and eight thousand pounds of coal were consumed in operating the pumps.

The outfall of the sewage-disposal system on the Potomac River near Shepherds Point was under constant observation during the year, and the general condition of the waters in the vicinity continued excellent. Examination of the river bottom showed no evidence of sludge deposits for a distance of 60 miles below the sewage outlets, and the shores and beaches were free from any objectionable condition as to odor or deposits. The surface of the river was substantially free from oil or other objectionable floating matter. No oxygen tests were made during the year, as a sanitary survey is being made of the Potomac River by the United States Public Health Service, and this survey included oxygen tests. It is understood that this survey has been substantially completed, and the report thereof is in preparation. The results of this survey will be important in determining the question of the purification of river waters, and assist the District of Columbia in dealing with the problem of sewage purification.

#### STREAM POLLUTION.

Work was continued during the year on the study of streams flowing into and through the District of Columbia as to the extent of their pollution by the discharge of sewage therein from neighboring Maryland towns. The pollution of these streams is now very apparent, and is steadily increasing. The subject was made the matter of a special investigation by the Department of Health of the State of Maryland and its bureau of sanitary engineering, and a report was submitted by the latter on February 3, 1914, to the Sewage Commission of Montgomery and Prince Georges Counties, Md. The governor of the State appointed a commission to consider plans to remedy these conditions. The commission submitted to the Maryland State Legislature a plan providing for the creation of a sanitary district embracing the State area adjacent to and draining into the District of Columbia, but no action was taken by the legislature toward enacting the bill. Until some comprehensive action is taken by the State of Maryland on this subject no action can be taken by the District of Columbia to secure an abatement of the objectionable conditions.

#### SUBURBAN SEWERS.

The following table shows the length and cost of sewers constructed during the year, mostly in the suburban portions of the District:

Section.	Length.	Cost.
1. County west of Rock Creek. 2. County east of Rock Creek 3. County west of Anacostia River 4. County east of Anacostia River. 5. Washington City.	17 085 24	\$34, 997. 10 123, 187. 20 00, 250. 68 88, 535. 36 72, 782, 87

#### SEWAGE DISPOSAL SYSTEM.

Under the sewage disposal system, the third section of the Rock Creek main intercepting sewer was constructed into the National Zoological Park as far as Adams Mill Road, and the fourth section, requiring a tunnel of 2,000 feet in length was excavated as far as Klingle Road and a portion of the sewer constructed. The fifth section, consisting of 1,300 feet of tunnel and 230 feet of open-cut work, was placed under contract, and 500 linear feet of tunnel excavation completed. Section 3, of the Anacostia main intercepting sewer, extending to Pennsylvania Avenue SE., was completed. This sewer has a total length of 9,605 linear feet. The outlet channel of the northeast boundary sewer was reconstructed.

#### WATER MAINS.

Ninety-eight thousand four hundred and sixty feet, or 18.6 miles, of water mains of all sizes were laid during the year at a total cost of \$191,303.87. The total length of water mains now in service is

3,120,406 feet, or 591 miles.

Five hundred and six fire hydrants, 13 public hydrants, and 6 horse fountains were erected during the year, and 383 fire hydrants, 6 public hydrants, and 2 horse fountains were abandoned, making the total number in service at the end of the year as follows: Fire hydrants, 3,289; public hydrants, 211; sanitary fountains, 11; horse fountains,

152; deep wells, 44; and shallow wells, 9.

The most important work of the year was the completion and putting into service of the Anacostia pumping station, and the extension of water service to the higher land beyond the Eastern Branch. The next most important project was the reinforcing trunk main laid in the low service area north and east of Capitol Hill. This consisted of about 4,800 feet of 30-inch and 4,700 feet of 24-inch main, and completed a loop much needed to insure uninterrupted service in the outlying portions of the gravity service and throughout Anacostia. Water service was also extended to the Home for the Aged and Infirm at Blue Plains, D. C., necessitating the laying of 7,600 feet of 8-inch main, reaching practically to the southernmost point of the District.

# WATER CONSUMPTION AND WASTE.

By reason of the installation of meters and the operation of the pitometer service a still further decrease in the consumption of water was accomplished during the year. The present mean daily rate of consumption is now about 54,000,000 gallons, and the per capita rate 152 gallons. Measures to reduce the consumption of water were started in 1905, when the mean daily rate had reached 69,000,000 gallons and the per capita about 227 gallons. The decrease in per capita rate since 1905 is 33 per cent. The safe mean rate of flow in the only conduit supplying the city with water is about 65,000,000 gallons daily. It is hoped that the per capita rate can be finally reduced to 130 gallons, and with the population increasing at about the same rate in the past the mean daily consumption would then reach the mean safe daily capacity of the conduit in the year 1930, when the population

of the District is estimated will be about 500,000. By means of the pitometer service for the prevention of water waste a total underground leakage was found and stopped, amounting to 2,552,000 gallons per day. The total expenses of this service were \$38,613.25.

The total pumpage of water during the year was 9,201,500,000

gallons.

# WATER REVENUES AND EXPENDITURES.

The water revenues from all sources during the year amount to \$828,396.69. The expenditures for the year amounted to \$794,952.16. The outstanding net liabilities on June 30, 1914, were \$32,497.90, leaving a working balance to the department on that date of \$946.63. Of the expenditures during the year about 52 per cent were for the extension of the plant; 27 per cent for operation, and the balance for repairs and replacements.

Water is furnished free to churches, hospitals, orphan asylums, schools, and charitable institutions under authority of law to the extent of 19,348,600 cubic feet. This is based on a per capita allowance of from 60 to 100 gallons per day, depending on the character of the institutions. All water in excess of that allowed is charged for at meter rates. This excess of allowance amounted to 5,419,700 cubic

feet during the year.

# WATER METERS.

During the year there were installed 8,555 meters, making the total number in service on June 30, 1914, 42,161. The total number of water services is 66,914, and of these 37 per cent remain yet unmetered. It is estimated that the metering of the city will be completed in the summer of 1918. The average cost of installing meters by the District of Columbia during the year was \$10.54, including the cost of the meter, which was \$4.90. The rate charged for water on meter services during the year was 4 cents per 100 cubic feet for all used in excess of 7,500 cubic feet. The minimum charge for 7,500 cubic feet is \$4.50 per annum. The average annual payment where meters were installed by the District of Columbia was \$5.80. Water rent bills are delivered to the householder annually at the minimum rate, which allows the use of 7,500 cubic feet, or 56,100 gallons, and if on actual measurement water is found to be used in excess of this amount, bills are rendered for such excess at the rate of 4 cents per 100 cubic feet.

On the water services which are not metered, water for domestic purposes is charged according to the number of stories and frontage. For premises of two stories with a front width of 16 feet or less the minimum rate is \$5 per annum; for each additional front foot or fraction thereof 31 cents is charged. For each additional story one-third of the charges as computed above is added. For business premises not metered rates vary from \$1 to \$25 per annum. Where the rate is \$25 or more, a meter is required to be installed at

the expense of the consumer.

# PROPERTY ACCOUNTABILITY.

On March 27, 1913, the commissioners designated the auditor, the superintendent of the water department, and the purchasing officer as a committee, with instructions to recommend to them a system

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of property accountability and records. On May 7, 1914, there were added to this committee the superintendent of sewers, the superintendent of the street cleaning department, and Capt. R. G. Powell, assistant to the engineer commissioner, the latter being designated chairman of the committee.

The committee has given careful consideration to the subject and taken steps to install a system which will prove to be economical and

satisfactory.

# CHANGE IN PERSONNEL OF BOARD OF COMMISSIONERS.

On October 31, 1914, Lieut. Col. Chester Harding, Corps of Engineers, U. S. Army, detailed by law as a Commissioner of the District of Columbia, was relieved from this duty by order of the President and assigned to duty under the Governor of the Panama Canal. He was succeeded as commissioner by Maj. Charles W. Kutz, Corps of Engineers, U. S. Army.

Very respectfully,

OLIVER P. NEWMAN,
FREDERICK L. SIDDONS,
CHAS. W. KUTZ,
Commissioners of the District of Columbia.

# ORGANIZATION OF THE ENGINEER DEPARTMENT. D. C.

Lieut. Col. CHESTER HARDING, Corps of Engineers, United States Army, Engineer Commissioner, D. C.

Capt. MARK BROOKE, Corps of Engineers, United States Army, Capt. J. L. SCHLEY, Corps of Engineers, United States Army, Assistants. Capt. R. G. POWELL, Corps of Engineers, United States Army,

# UNDER THE IMMEDIATE SUPERVISION OF THE ENGINEER COMMISSIONER.

RECORD DIVISION-

RECORD DIVISION—
D. R. GARGES, Chief Clerk,

WHARF COMMITTEE—
DANIEL E. GARGES, Chief Clerk, Engineer Department,
D. E. MCCOMB, Engineer of Bridges,
RUBRELL DEAN, Herbor Master.

ROCK CREEK PARK—
L. R. GRABILL, Assistant Engineer in Charge,
DISTRICT BUILDING—
Capt. Mark Brooke, Superintendents.

Capt. J. L. SCHLEY,

# UNDER THE IMMEDIATE SUPERVISION OF CAPT. BROOKE.

HIGHWAYS (STREETS, ROADS, BRIDGES, ETC.)—
C. B. HUNT, Engineer of Highways.
Sidewalks and alleys—
H. N. Moss, Superintendent of Streets.
Construction and maintenance of surburban roads—
L. R. Grabill, Superintendent of Suburban Roads.
Construction and care of bridges—
D. E. McComs, Engineer of Bridges.
STREET AND ALLEY CLEANING, COLLECTION OF GARBAGE, ETC.—
J. W. PAXTON, Superintendent of Street Cleaning.
ABPHALTS AND CEMENTS—
J. O. HARGROYE, Inspector of Asphalts and Coments.

J. O. HARGROVE, Inspector of Asphalts and Coments, Surveyor's Office (including street extensions)—
M. C. HAZEN, Surveyor,
TREES AND PARKINGS—

TRUEMAN LANHAM, Superintendent of Trees and Parkings.

PERMITS—
H. M. WOODWARD, Permit Clerk.

AUTOMOBILE BOARD—
H. M. WOODWARD, Secretary.

#### UNDER THE IMMEDIATE SUPERVISION OF CAPT. SCHLEY.

ELECTRICAL DEPARTMENT—
W. C. AILEN, Electrical Engineer.
ENGINEER DEPARTMENT STABLES—
J. W. BEALB, Superintendent.

# UNDER THE IMMEDIATE SUPERVISION OF CAPT. POWELL

WATER DEPARTMENT—
W. A. MCFARLAND, Superintendent.
Water rater—
G. W. WALLACE, Water Registrar and Ohief Olera.
SEWER CONSTRUCTION AND MAINTENANCE—
ASA E. PHILLIPS, Superintendent of Sewers.
MUNICIPAL ARCHITECT—
SNOWDEN ASHEODEN
SUPERING SHEEDEN

MUNICIPAL ARCHITECT—

BNOWDEN ASHFORD.

Repairs to municipal buildings—

HENEY STOREY, Superintendent of Repairs.

BUILDING INSPECTION—

MORRIS HACKER, Inspector of Buildings.

Plumbing plans and inspection—

A. M. M. GONEGAL, Inspector of Plumbing.

Plumbing board—

P. C. SCHAEFER,

J. S. O'HAGAN,

R. A. O'BRIEN.

Board of examiners of steam engineers—

E. F. VERMILLION,

H. BOBSCH.

JAS. T. FINK.

JAS. C. FINK.

BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS—Capt. R. G. POWELL, Assistant to Engineer Commissioner. Dr. William C. WOODWARD, Health Officer.
MORRIS HACKER, Inspector of Buildings.

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# REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT OF THE DISTRICT OF COLUMBIA.

#### REPORT OF THE ENGINEER OF HIGHWAYS.

Washington, D. C., October 1, 1914.

SIR: I have the honor to submit the following report of the operations of the office

size: I have the nonor to submit the following report of the operations of the omce of the engineer of highways for the fiscal year ended June 30, 1914.

The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the surface division aggregated \$1,330,919, of which \$220,000 was for paving sidewalks and alleys in all parts of the District; \$558,000 for paving new roadways and repairing old roadway pavements; \$241,350 for construction of suburban roads; \$142,600 for construction and repair of bridges; \$15,000 for grading streets and avenues; \$14,000 for sidewalks and curbs around Government recognitions buildings and parks; and \$140,589 was spont in revening pavements. reservations, buildings, and parks; and \$140,569 was spent in repairing pavements disturbed by other branches of the District government, and by various corporations and others.

Summary of work under appropriation for improvements and repairs for year ending June 30, 1914.

Character of work	Streets and avenues.	Suburban streets and roads.		Total.
Sheet asphalt paving	1, 968. 02 5, 667. 83 5, 939. 29 8, 152. 92 7, 949. 00 6, 482. 35	2, 424, 29 19, 399, 19 16, 927, 50 14, 674, 56 58, 182, 00 9, 223, 61 25, 837, 05 9, 890, 91 8, 851, 04 59, 063, 00 13, 278, 70	10, 349, 15 5, 219, 23 10, 318, 51 3, 741, 24 12, 927, 38 36, 764, 29	13, 148, 06 8, 092, 12 29, 748, 34 5, 219, 23 22, 866, 79 14, 674, 56 58, 382, 00 9, 223, 61 44, 308, 49 9, 880, 91 8, 851, 04

Norg.—Included in the above statement: 8,608.61 square yards bituminous concrete in place of sheet apphalt; 6,111.55 square yards bituminous concrete in place of asphalt block; 20,810 square yards sheet asphalt in place of asphalt block.

The following is a list of tables appended to the report:

TABLE A.—Street railways in the District of Columbia July 1, 1914.

Tables B and C.—Statement of character and extent of street pavements.

Table E (two parts).—Schedules of work on streets and avenues and county roads, and suburban streets.

TABLE F.—Repairs to asphalt and coal-tar pavements.

TABLE G.-Work done for street railway companies.

Table H.—Work done by day labor under appropriations for repairs to streets. avenues, and alleys

TABLE I .- Regular permit work.

TABLE K .- Assessment work.

Table L.—Replacing and repairing sidewalks and curbs around public reservations.

TABLE M.-Miscellaneous work.

TABLE N .- Whole cost work.

TABLE O.—Repairs to cuts by plumbers and others.
TABLE P.—Grading streets, alleys, and roads.

Sheet asphalt continues to be the leading type of roadway pavement constructed, followed by asphaltic concrete. A limited amount of asphalt block on a concrete base, and of cement roadway pavement with a thin bituminous-skin treatment was laid. The contract prices for these constructions, exclusive in each case of grading and incidental costs, were as follows:

•	Per square yard.
Sheet asphalt	\$1. 69
Bituminous concrete on concrete base	1. 64
Bituminous concrete on broken stone base	
Asphalt block on concrete base	1.79
Cement concrete.	

Each price includes a maintenance guaranty for five years.

No additions were made during the year to the area of roadways resurfaced by the heater method, the expectant policy as to the behavior of the considerable area

already so treated being continued.

Alley pavements of a smooth modern type were laid to the extent of a total of 14,683 square yards of vitrified block and 7,734 square yards of asphalt block, both paved on a gravel base. A small amount of the vitrified block used was secured from the brick plant operated by the District at Occoquan, where prison labor is availed of for the production of material suitable for public works. If this material proves durable and its uniform quality can be confidently counted upon, its continued use will be indicated as a good administrative procedure.

The surface improvements in connection with the opening of the entrance to the Zoological Park at Harvard Street were completed, including the several intersecting streets embraced in the project, and the masonry step connections between the high

and low grade sections of Quarry Road.

The construction of the bridge across Rock Creek on the line of Q Street was placed under contract and operations begun thereunder, final action having been secured in the court proceedings for the condemnation of the site for the bridge and its

approaches.

Under the project for the elimination of grade crossings the central island of the Union Station Plaza was improved by creating a sodded area combined with such necessary walkways as were indicated by the volume and direction of the pedestrian traffic observed to cross this space. The masonry of the plaza was cleaned and the flagstaffs painted.

Cement sidewalks were laid to the exclusion of other types throughout the year, the contract prices being 922 cents per square yard for urban work and \$1.162 per

square yard for suburban work.

Work on the project for the construction of the Pennsylvania Avenue Bridge across Rock Creek was limited to the preparation of the specifications and plans. The nature of the work is such that the funds available would not have justified the placing of the work under contract on as advantageous terms as to await the appropriation of the total cost, and the final completion of the work has not been postponed by the action taken.

# MUNICIPAL ASPHALT PLANT.

The municipal asphalt plant, which was authorized to be purchased and operated in the appropriation bills of 1913 and 1914, was so operated, with results that complied with the requirements of the law, that the work should be economical as compared with contract work.

The total output of the plant during the fiscal year was 172,128 cubic feet.

A large fraction of this output was made from suitable old topping material removed from the streets, to which proper additions of asphaltic cement and other material

were made with a resulting substantial economy.

The cost of suitably crushing this old material, thus preparing it for the addition of the asphaltic cement, amounted to \$1.04 per cubic yard of material, or about 4 cente per cubic foot, including in this figure a suitable allowance for interest on the capital invested in this portion of the plant, maintenance of the same, and 20 per cent obsolescence. The plant proper was operated for 232 working days, the aver-

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ge output per day being 742 cubic feet and the cost of operation of the plant and the labor hauling the material to the street, cutting out and laying the same, including all fuel charges, both at the plant and on the street, averaged 21.8 cents per cubic foot. Of this cost 5 cents represented labor and fuel at the plant; 3.8 cents represented haul to the street, and 13 cents represented placing on the street. The overhead charges were two in number; the cost of supervision, foremen, etc., was 3½ cents per cubic foot, and the maintenance of the plant, interest on the capital invested, and 20 per cent obsolescence on the plant amounted to 1.6 cents per cubic foot. Tool sharpening, a constant expense, averaged one-half cent per cubic foot. The aggregate of the four items last enumerated, constituting the cost of the plant output, exclugive of the cost of the material, was 27.4 cents per cubic foot. By additions to this of the various material costs indicated by the formula used for different mixtures, the total cost of such mixtures results, thus for a top mixture manufactured with Bermudez asphaltic cement, known as class A work in our specifications, the cost of the material, including the proper waste, was 20 cents, which, added to the manufacturing cost above of 27.4 cents, makes a total cost of 47.4 cents per cubic foot, comparable with the current contract price of 57 cents cubic foot; while for binder mixture under the same specifications the material cost was 10.8 cents, which, added to manufacturing cost as before, 27.4 cents, makes a total cost of 38.2 cents per cubic foot, comparable with the current contract price of 43 cents per cubic foot.

The continued use of old material mixture for asphalt repairs is still confessedly experimental. Its manifest economy is its justification and until its deficiencies shall be recognized as compensating for this advantage it is proposed to continue the

procedure.

No proper effort or outlay has been spared to maintain the plant against deterioration, so far as this has been practicable.

My acknowledgments are due to the employees of this division for the work accom-

plished by the office during the year. I transmit herewith the reports of the engineer of bridges, the superintendent of streets, and the superintendent of suburban roads.

Very respectfully,

C. B. HUNT. Engineer of Highways.

Capt. MARK BROOKS. Corps of Engineers, United States Army, Assistant to Engineer Commissioner, District of Columbia.

# STATEMENT OF PER DIEM EMPLOYEES.

Statement showing employees temporarily required in connection with street, road, and bridge construction and repairs, and appropriations and deposits from which paid during fiscal year ended June 30, 1914.

# SURFACE DIVISION.

1

Designation.	Number.	Rate per diem.
Assistant engineers. Draftsmen. Transitmau. Rodman. Inspectors. Copylits. Computers. Overseers. Chainman.	1 1 1 14 7	2 at \$4, 2 at \$5, 1 at \$4, 1 at \$4, Do. 1 at \$5, 1 at \$5, 11 at \$4, 2 at \$5, 2 at \$4.50, 3 at \$3.50, 1 at \$3, 1 at \$2, 2 at \$4. 1 at \$4.50, 1 at \$3, 1 at \$2.25
Appropriations from which paid: Improvements and repairs, District of Columbia, 1914 Elimination of grade crossings Quarry Road entrance to Zoological Pack, District of Columbia, Q Street Bridge across Rock Creek, District of Columbia Construction of suburban roads and suburban streets	ia	

### REPORT OF THE SUPERINTENDENT OF STREETS.

WASHINGTON, August 27, 1914.

Sir: I have the honor to submit herewith the annual report of the operations under

my charge for the fiscal year ended June 30, 1914.

Table "H" is a summary of work done by day labor under the appropriation for "Current repairs to streets, avenues, and alleys." The cost of such work was \$66,815.50, including the repair of 4,500 dangerous holes. One-third of this work was

\$50,810.50, including the repair of 4,500 dangerous noises. One-third of this work was sidewalk and alley work, and the other two-thirds was repairs to street roadways.

Table "I" is a list of work done under the permit system, wherein the property owners requested the improvement, and paid one-half the cost; the District paying the other half. The cost of this work was \$8,779.14.

Table "K" is a list of work done under the assessment system. One-half of the cost of such work is charged against the abutting property. The total cost was

\$180,410.67.

Table "L" is a list of the work paid for from the appropriation for "Replacing sidewalks and curbs around public reservations." The amount expended under this class of work was \$11,509.66.

Respectfully.

H. N. Moss. Superintendent of Streets, District of Columbia.

The Engineer of Highways.

### Laying and relaying asphalt block in various sections.

[Appropriation 1914. Job, 1007. July 11, 1913, to June 30, 1914.]

Northeast section: Labor	476, 74
Laid 5,079 square yards new block; relaid 8,680 square yards old block. Southeast section:	12, 776. 52
Labor. Sand and cement. 210,924 asphalt blocks, at \$68; 38,125 special blocks, at \$68.	760. 5 <b>4</b>
Laid 10,279 square yards new block; relaid 15,528 square yards old b 1,220 feet curb.	26, 419. 56 lock; reset
Southwest section: Labor	67. 18
Laid 1,356 square yards new block; relaid 1,132 square yards old block.	2, 522. 21

### REPORT OF SUPERINTENDENT OF SUBURBAN ROADS.

Washington, September 4, 1914.

Sire: The appropriations expended wholly or in part under this office in the fiscal year ended June 30, 1914, were as follows:

Construction of suburban roads	\$154, \$50
Repairs to suburban roads	140,000
Grading streets, alleys, and roads	15 000
Quarry Road entrance to Zoological Park (part of)	67,000

Itemized statements of these expenditures are submitted herewith.

In new construction, the entrance from Sixteenth Street to the Zoological Park by the way of Harvard Street was completed, including the construction of extensions of Eighteenth Streets, Lanier Place, and Summit Place, and the improvement of Quarry Road. Connecticut Avenue NW., between Newark and Tilden Streets, Sherman

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Avenue NW., between Florida Avenue and Columbia Road; and Eleventh Street NW., between Clifton Street and Columbia Road, were paved with bituminous concrete, of which Sherman Avenue was on concrete base, the two others being on brokenstone base. The improvement of Rhode Island Avenue NE., between North Capitol and Fourth Streets, was completed; and the improvement of Macomb Street NW., between Connecticut and Wisconsin Avenues, was finished.

between Connecticut and Wisconsin Avenues, was finished.

The north side of Massachusetts Avenue NW., between Arizona and Nebraska Avenues, was widened to accommodate the new track of the Washington Railway &

Electric Co.

In addition, many smaller items of improvement were completed.

A considerable quantity of cement roadway was laid on suburban streets which were well built up. The cement base was 6 inches thick, covered with a thin surface coat of tax. This class of pavement is proving satisfactory, being constructed at a cost much less than sheet asphalt or bituminous concrete on cement base, and being much more easily kept in repair than a macadam roadway under the conditions found in such localities. It is proposed, during the coming year, to make these pavements only 5 inches in thickness, but of a richer mixture.

The use of bituminous concrete, both on concrete base and on old macadam base, was continued, as this class of work appears to be the best suited to a heavy suburban traffic. It is recommended that the most heavily traveled suburban streets and roads be paved with this class of material as rapidly as funds can be secured for the purpose.

The largest items of work done under the appropriations for repairs to suburban

roads, were as follows:

Daniel Road NW., from the line of Rock Creek Park to Rittenhouse Street	
(reconstructed)	\$6,732.25
Georgia Avenue NW., from Irving to Shepherd Streets	1, 149. 08
Michigan Avenue NE., from North Capitol Street to the District line	2, 182. 12
Rhode Island Avenue NE., from North Capitol Street to South Dakota	-
Avenue	
Streets in Brookland NE	2, 685. 62
Bladensburg Road NE	
Streets in Langdon NE	
Naylor Road SE	
Livingston Road SE	716. 75
Pennsylvania Avenue SE	935. <b>79</b>

Smaller items of repairs will be found in the Appendix. Approximately \$30,045 was expended for oiling and tarring, and \$2,344 was expended for sprinkling roads which could not be oiled, making about \$32,389 expended during the year for dust prevention. For items of minor repairs too small to be tabulated, \$35,307.44 was expended.

At the close of the fiscal year, the mileage of improved roads and streets in the District of Columbia, outside of the limits of the city of Washington, but not including those paved with granite block, sheet asphalt, or asphalt block, is as follows:

	ALG.
Bituminous concrete roadway	3, 75
Bituminous macadam roadway	4. 36
Cement roadway	
Macadamized roadway	109. 55
Gravel roadway	49.55
was two arms	

Very respectfully,

L. R. GRABILL, Superintendent Suburban Roads, District of Columbia.

The Engineer of Highways.

### Repairs to suburban roads, 1914.

Job No.	Location.	Work,	Cost.
	SECTION 1.—Potomac River to Rock Creek,		
484	East side Connecticut Avenue, between Jenifer and Keo- kuk Streets.	-	
4006	Albemarie Street, between Connecticut and Wisconsin Avenues.	Repair	430.62

# Repairs to suburban roads, 1914—Continued.

Job No.	Location,	Work.	Cost.
	SECTION 1.—Potomac River to Rock Creek—Continued.		
4054 4079	Daniel Road, from Wise to Military Road	Reconstruct	\$6, 732. 26 267. 62
4061	bemarie Street. Fessenden Place NW., Forty-first Street to Wisconsin	do	225. 26
4127	Avenue. Woodley Road, south of Cathedral Avenue	do	50.00
4130 4133	Woodley Road, south of Cathedral Avenue		
4142 4145	Swart Road, from Military Road to Broad Branch Road Broad Branch Road, near McKinley Street	do	36.50 307.00
4158	Kond.		
4165 4167	Kanawha Street NW., east of Connecticut Avenue Murdock Mill Road, west of River Road	do	62. 50 217. 50
4027 4171	Murdock Mill Road, west of River Road	l	
4241	Connecticut Avenue, between Cathedral Avenue and Chevy Chase.		ł
4243	Massachusetts Avenue, between California and Nebraska		
4245 4242	Thirty-third Street, Rittenhouse Street to District line Wisconsin Avenue, Thirty-seventh Street to District line.	do	58. 50 213. 25
4253 4222	Pierce Mill Road, between Connecticut Avenue and Wis-	do	99. 87 24. 12
4126	Little Falls Road, between Chain Bridge and Conduit Road.	do	58. 25
4227 4274	Various roads (spring, 1914)	Oiling	2,711.20 381.62
4000	Various roads	Watering	768.00
	Dangerous holes and minor repairs		22, 761, 89 9, 426, 86
	Danga van note and man ropens		32, 188. 72
	SECTION 2.—Rock Creek to North Capitol Street and Riggs Road.		
4007	Twentieth Street NW., between Park Road and Rock	Repair	199. 10
4008 4009	Creek Park. Columbia Rroad, between Sherman and Georgia Avenues Lamont Street Nw., between Eighteenth and Nine-	do	366. 37 324. 65
4046	teenth Streets.  Eastern Avenue, between Cedar and Chestnut Streets  Seventeenth Street NW., Park Road to Piney Branch	Catch basin	195. 65 281. 96
4060 4067	Various roads (fall, 1913)	Oiling	1,588.91
4078 4093	Street.	Terra-cotta pipe	40.47
4094 4102	Ninth Street, between Sheridan and Tuckerman Streets Milk House Ford Road Adams Mill Road, from Lanier Place to Ontario Road	Repair	18. 50 340. 70
4117 4118	Newton Street, west of Warder, and Sixth Street	do	450.6. 321.87
4128	Street. West side Seventh Street NW., from Kennedy to Long-	Gutters	
4129	fellow.	Adjust mitter	
4141 41 <b>48</b>	Varnum Street NW., between Seventh and Eighth Streets Upshur Street NW., between New Hampshire Avenue and Seventh Street.	Repairdo	16.04 108.00
4157 4164 4168	Thirteenth and Shepherd Streets NW	Gutter and pipe Repairdo	41.60 114.75
4170 4178 4047	Carroll Street, Takoma Park Warder Street, north of Newton Street Decatur Street NW., between Sixteenth and Piney Branch Road.	do	193. 68 151. 88 53. 98
4146 4197	Tuberculosis Hospital grounds (repaid)	Building roadway	589.38 90.14
4027 4180	Various roads (fall, 1913) Eighteenth Street NW., between Ontario Road and Sum-	Olling	8, 240. 00 859. 62
4186	mit Place.  Park Place, between Columbia Road and Hebert Place	- 1	16.25

# Repairs to suburban roads, 1914—Continued.

Job No.	Location.	Work.	Cost.
	SECTION 2.—Rock Creek to North Capital Street and Riggs Road—Continued.		
4199	Nineteenth Street NW., between Biltmore Street and	Repair	\$15.73
4198	Mintwood Place.  Lamont Street, east of Warder Street	do	94. 13
4030	Shepherd Road	do	174.32
4081 4083	Streets in Takoma Park	do	32.75 177.00
4084	Streets in Petworth	do	197.00
4065	Streets in Brightwood	do	176.58
4086 4119	anniwood Piece.  Lamont Street, east of Warder Street. Shepherd Road. Piney Branch Road Streets in Takoma Park Streets in Petworth Streets in Brightwood. Streets in Saul's subdivision. Rock Creek Church Road, between Shepherd Road and Riggs Road.	do	127. 25 387. 60
4233	Georgia Avenue, between Shepherd Road and District of	do	459. 13
4028 4029 4082	Riggs Road.  Blair Road, between Cedar Street and Riggs Road.  New Homosphire Avenue between Park Road and Rock	do	161.75 347.95
1234	Georgia Avenue NW., from Irving to Shepherd Streets	do	1,149.01
(223	Various roads (spring, 1914)	Olling	2, 956. 38 489. 00
4000 4236	Sixteenth Street, from Piney Branch north	Repair	143.31
4279	Creek Church Road. Georgia Avenue NW., from Irving to Shepherd Streets Various roads (spring, 1914) Various roads Sixteenth Street, from Piney Branch north Various streets	Tarvia B	1,540.21
	Dangerous holes and minor repairs		18, 764, 55 13, 056, 50
	SECTION 3.— North Capitol Street to Bustern Branch.		31.821.05
4005	Uhland Terrace NE., between Summit Place and Second Street.	Repair	46.48
4043 4044	Brentwood Road, east of South Dakota Avenue	dodo	148.00 109.00
4064	Fifteenth, between Lawrence and Monroe Streets.  Streets in Highview, between Lincoln Road, Second, T, and V Streets NE.	Improve	655. 63
4111	Todd Place NE., between First and Second Streets	Grade and surface	470.82
4112	Todd Place NE., between First and Second Streets U Street NE., Lincoln Road to Second Street	do	703.56
4113	Second Street NE., Todd Place to V Street	do	639. 05 232. 34
4114 4115	First Street NE., U Street to Todd Place.	do	309.83
4132	Second Street NE., Todd Place to V Street		
448	North Capitol Street, between V Street and Michigan	Tarvia	
4144 4156	East side Lincoln Road, from V Street, 150 feet north Nineteenth and C Streets NE	GradeRepair	209. 73 66. 19
4060	Queens Chapel Road, from Bunker Hill Road to District	do	211.50
4172	of Columbia line.  Fourth Street NE., between V Street and Rhode Island	do	365. 62
4651	Avenue. Randolph Street NE., east of Twelfth Street	Grade and gravel	565. 12
4021	Various streets (fall, 1913)	Oiling	2, 844. 41
4010	and Michigan Avenue.		
4013	Michigan Avenue, between North Capitol and District of Columbia line.		
4014 4015	Range Island, North Capitol to South Dakota Avenue	do	1,348.14 413.87
4016	Lincoln Road	do	354.65
4017	Commois line. Rhode Island, North Capitol to South Dakota Avenue Sargeant Road Lincoln Road Streets in Brookland Streets in Ivy City Streets in Langdon	do	2, 685. 62
4018 4019	Streets in Langdon	do	67.00 809.26
014	Montello Avenue	do	00.00
4011	Montello Avenue.  Bladensburg Road, between end of asphalt and District of Columbia line.	do	2,977.55
4225 4000		OilingWatering	3, 265. 16 701. <b>00</b>
	Dangerous holes and minor repairs		23, 526. 09 3, 403. 01
	,		26, 929, 10
<b>4022</b>	SECTION 4.— East and south of Eastern Branch.  Naylor Road and Walker Road	Grade and gravel	863, 65
4023	I billiamton Dood	do -	716.75
4037 4067	Sixty-first Street between Dix and East Capitol Streets Eighth Street SE. between Portland Street and Hamilton Road.	do	555. 4 <b>6</b> 183 <b>. 5</b> 8

# Repairs to suburban roads, 1914—Continued.

Job No.	Location.	Work.	Cost.
	SECTION 4.—East and south of Bastern Branch—Could.		
4065	Portland between Seventh and Eighth Streets, and	Repair	\$190.5
4066	Seventh, between Orange and Portland Streets.  Bennings Road, Kenilworth Avenue, Sheriff Road, Nichols Avenue, Good Hope Road, and Pennsylvania	Oiling	1,784.8
4068	Avenue (fall, 1913). Morris Road between Nichols Avenue and Fifteenth Street.	Repair	305. 1
1103	Wheeler Road between Alabama Avenue and District line.	Protection fences	28.5
1110 1149	Pennsylvania Avenue and Branch Avenue	Gravel	266. 6 350. 9
179	Ninth and Tenth Place, south of Alabama Avenue Bennings Road, west of bridge	RepairGrade and gravel	600.
035	Eighteenth Street SE. between Minnesota Avenue and S Street.	Grade and gravel	507. 4
188	East side Minnesota Avenue, at intersection of Pennsylvania Avenue; Minnesota Avenue and Twenty-fifth Street; Minnesota Avenue and Twenty-third Street; and across Nicholson Street.	Crossings	28.7
045 069	Giesboro Roed	Repairdo	247. 4 985. 7
	Branch.		
205 116 077	Hillsdale Sheriff Road, Eastern Avenue, and St. Catharine Street Forty-third and Forty-fourth Streets N.E., Sheriff Road to Deane Avenue.	Protection fences	40. 3 84. 3 205. 6
206	Sheriff Road, and of macadam to District line	do	15.8
259 131	Nichols Avenue, near Congress Heights School	Repair culvert	46.8 25.0
236	Nichols Avenue, Sheridan Road to Sterling Place	Repair	261.1
237 238	Central Avenue from Bennings Road, east	do	13.0 56.1
261	Ridge Road between Anacostia Road and District line	do	206. 8
226 000	Nichols Avenue, near Congress Heights School  Rast side Thirtieth Street, south of R Street  Nichols Avenue, Sheridan Road to Sterling Place.  Central Avenue from Bennings Road, east  Kenilworth Avenue from Bennings Road to District line.  Ridge Road between Anacostia Road and District line.  Various roads (spring 1914).  Various roads.	Oiling	1,916.3 386.0
	Total.  Dangerous holes and minor repairs.		
	Dangerous holes and minor repairs		9, 421. 1
	Total		90, 463. 3
	RECAPITULATION.		
ecti	m 1		<b>832, 188.</b> 7
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eme	ntps	•••••	37.5
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ера	irs to road machine	•••••••••••	103.0
orra Lene	-cotta pipe. irs to trestle at property yard		218. 2 223. 9
teel	tanks for ou wagons	• • • • • • • • • • • • • • • • • • •	637. 2
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ime	stone chips		364. 5
tone	stone chips , including freight and hauling (not inclusive in jobs)		16, 479. 8
ar ti	ckets	• • • • • • • • • • • • • • • • • • • •	20.0
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rope ubr ldju Keros	neals		16. 4 5. 0 182. 8

Repairs, supplies, etc., for auto truck (field party)  Repairs to motor cycles  Repairs to Cadillac automobile  Heating and unloading oil  Blacksmithing  Catch basins	2604, 36 260, 60 267, 70
Heating and unloading oil.  Blacksmithing Catch havins	816.08 977.85 89.60
Miscellaneous items and outstanding bills. Balance	1,916.72 126.48
Total.  Less repayment on account of deposit for Tuberculosis Hospital (job 4146)	140, 589, 88 589, 88
Total	140,000.60

### REPORT OF THE ENGINEER OF BRIDGES.

WASHINGTON, D. C., September 10, 1914.

Size: I have the honor to submit the following report of the operations under my charge for the fiscal year ended June 30, 1914:

The expenditures under the construction and repair of bridges were as follows:

	Character of work.	
١	North approach to Connecticut Avenue Bridge (erecting lamp pedestals and la	mps).
	Connecticut Avenue (painting)	
	Amnostia Road (reflooring)	
	North approach to Aqueduct Bridge (building fence)	
	North approach to Aqueduct Bridge (building fence).  Superstructure of Bridge, Grant Street cast of Fifty-first Street.	
	Superstructure of bridge, Dean Avenue, east of Fiftieth Street	
	Chain Bridge (reflooring)	
	Aqueduct Bridge (repairing).  Remove bridge crossing canal on line of N Street.	
	Remove bridge crossing canal on line of N Street	•••••
	East half of bridge (reflooring).  Connecticut Avenue, between Keokuk and Legation Streets (extending culver)	
	P Street Bridge (reflooring)	"…
	Connectiont Avenue Bridge (complete footwells)	
	Aqueduct Bridge (covering lower chord of through span)  Pierce Mill Road crossing Rock Creek (reflooring)  Watts Branch on line of Forty-eighth Place (steel concrete)	
	Pierce Mill Road crossing Rock Creek (reflooring)	
	Watts Branch on line of Forty-eighth Place (steel concrete)	
	M Street, over Rock Creek (reflooring)	1
	Anacostía Bridge	• • • • • • •
	P Street Bridge (painting).  Dangerous holes and minor repairs:	••••••
	July 1-15, 1913	w en
	July 16-31, 1913	22. M
	Aug. I-15, 1913	288
		13. 16
		22, 78
	Sept. 16-30, 1913	24. 99
	Sept. 1 to Dec. 15, 1913	2.14
		20.31
		13. 95
	Feb. 1-28, 1914	2.50
		35. 20 01. 10
	Nov. 16-30, 1913.	15. 85
		20. 69
		2 75
	Dec. 16-31, 1913	75. 01
		19.69
	Mar. 1-15, 1914	86. 87
	Mar. 16-31, 1914	
		2.75 10.98
	June 16-30, 1914	19. 51
	Lumber	l
	Bolts	
	Tools	
	Coal	
	Paints and oils. Photographic work.	• • • • • • •
	Steel for stock	
	Salaries, engineer of bridges' office	•••••
	Miscellaneous	
		1
ĺ	Total expended	
	Amount received in repayments	
	Balance	
		•••••
	Amount appropriated, "Construction and repair of bridges, 1914"	

The following bridges were refloored: Anacostia Bridge, draw span; Chain Bridge: Pennsylvania Avenue Bridge over Anacostia River, east half; M Street Bridge over Rock Creek.

James Creek Canal has been in part filled and abandoned and the bridges which

crossed it in the lines of M and N Streets were removed.

Three steel-concrete bridges were constructed over Watts Branch in the lines of

Dean Avenue, Grant Street, and Forty-eighth Place.

The sundry civil bill for 1911-12 contained an appropriation of \$20,000 for the construction of a rock-face or bowlder bridge across Rock Creek in the Zoological Park, and provided that "Hereafter all plans and specifications for bridges in said park shall be prepared under the supervision of the engineer of bridges of the District of Columbia." Plans and specifications for a steel-concrete bridge having a clear span of 80 feet were prepared as stipulated and the same was constructed at a cost (exclusive of roadway, footways, and approaches) of \$13,637.36.

Expenditures for bridge work in the near future will be required as follows: Aqueduct Bridge, replacement or reconstruction because of inadequate capacity and defective approaches; Calvert Street Bridge, replacement because of inadequate capacity; M and P Street Bridges across Rock Creek, replacement of timber floor

with permanent floor construction.

In addition to the above the smaller bridges with wooden floors should be provided with permanent floors.

Very respectfully,

D. E. McComb. Engineer of Bridges.

The Engineer of Highways.

TABLE A.—Street railroads in operation in District July 1, 1914.

	Underground electric.		Overhead electric.	
Name of company.	Double track.	Single track.	Double track.	Single track.
Washington Railway & Electric Co.: Metropolitan. City & Suburban. Brightwood.	Miles. 8.60 3.86	Miles. 3.98 · 2.36	Miles. 5.58 5.93	
Georgetown & Tennallytown. Anacostia & Potomac River. Washington & Glen Echo. Columbia.	7.65		4.16	
Total Capital Traction. Washington, Alexandria & Mount Vernon East Washington.	20.19	6.34 8.60 .46	26.77 8.57	. 89
Washington Spa Springs & Gretta. Baltimore & Washington Transit Co.				2.65 2.88
Total	43.37	10.40	30.34	6.37
& Electric Co.  Tracks used in common by Washington Railway & Electric and Washington, Alexandria & Mount Vernon Co.	1.55 .40			••••••
Total	45.32	10.40	30.34	6.87
Washington Railway & Electric Co. Extension: In operation				.83 1.11

## TABLE E-

of improvement.

halt..... do..... do..... do..... halt block..... iminous concrete, ncrete base. do..... do.... do..... do..... minous concrete, acadam base. do.....tent concrete..... do.....adam......tent concrete..... do..... do..... do..... do..... vert.....sdam.... do..... do..... do..... do.... do.....de do..... ters..... vert....... adam..... de.... nminous concrete, ncrete base. halt.....halt block..... aminous concrete, increte base. aminous concrete, acadam base.

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TABLE E-

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## TABLE E-

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minous concre	te,	
scadam base. ient concrete	1	
adam		
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	i i	
or shown in Tab		

TABLE Eimprovement. is concrete, base. concrete, crete.. rete, ite,

Tables B and C.—Character and extent of roadway pavements July 1, 1914.

SQUARE YARDS.

	•	SQUAR.	E YARDS	<b>5.</b>			
Section.	Asphalt.	Asphal block.	Bitu- minous concrete concrete base.	oncrete			Vitri- fied block.
Northwest, city Northeast, city Southeast, city Southwest, city Georgetown Northwest, suburban. Northeast, suburban.	299, 170 178, 157 229, 580 138, 864 240, 252 58, 347 6, 251	227, 60 7 226, 11 9 43, 38 4 23, 07 7 6, 92	3 3, 127 4 4, 985 2 5, 360 5 1, 653 7 21, 404 5 14, 354	7 4, 082 3 906 4 36, 680 4 3, 049	2 24, 827 5, 038	. 173, 980 . 43, 453 . 25, 915 . 5, 971 . 4, 667	18,000 3,88 3,18 51
Total	west, suburban 240, 252 79, 087 21, 404 36, 680 24, 827 25, 915 east, suburban 58, 347 6, 925 14, 354 5, 5038 5, 971 east, suburban 6, 251 3, 049 4, 667	25,53					
Section.		Cobble.	Macadam, esti- mated.	Gutters on asphalt streets.	Gutters on bitu- minous concrete streets.	Pavements maintained by street railroads.	Total.
Northwest, city Northeast, city Southeast, city Southwest, city Georgetown Northwest, suburban Southeast, suburban		33, 146 13, 122 21, 865 13, 988	60,000 92,000 78,000 35,800 6,800 1,350,000 50,000	111, 962 25, 427 13, 075 21, 018 4, 248 22, 228 4, 881 1, 678	1, 128 231 682 651 101 5, 461 1, 049 272	279, 432 69, 316 48, 328 56, 820 31, 816 54, 668 9, 000 7, 370	2, 407, 841 739, 041 006, 417 591, 594 265, 418 1, 800, 522 405, 561 73, 287
Total	ŀ		1, 969, 600	204, 517	9, 575	556, 750	6, 949, 600
	<del>'</del>	MIL	EAGE.		·	·	
Section.	- Asphalt.	Asphal block.	Bitu- minous concrete concrete base.	concrete		Granite and rubble.	Vitri- fled block.
Northwest, city Northeast, city Southeast, city Southeast, city Southwest, city Georgetown Northwest, suburban Northeast, suburban Seutheast, suburban	13.46 3.87 .46	9.60 11.30 2.50 1.51 4.20 .63	0 .19 0 .27 0 .29 1 .19 5 1.06 3 .97	. 17	1.46		0.80 .24 .27 .03
Total	151.60	31.36	8.48	2.68	1.66	25. 58	1.84
Sec	et <b>ion</b> .			Cobble.	Macadam esti- mated.	Gravel and unim- proved.	Total.
Northwest, city Northeast, city Sautheast, city Sautheast, city George own Northwest, suburban Southeast suburban Southeast suburban					5. 20 4. 00 1. 68 . 39 . 83. 42 . 20. 66	3. 12 5. 70 10. 00 2. 00 . 76 60. 72 49. 21 34. 52	106. 59 87. 84 88. 51 29. 14 14. 75 167. 50 76. 15 39. 49
Total		• • • • • • • • • • • • • • • • • • • •		. 4.12	122.12	1 166.03	509.97

TABLE G.—Charges against street railroads (work in connection with paving and resurfacing).

### WASHINGTON RAILWAY & ELECTRIC CO.

Street.	From—	То	Section.	Amount.
Third	Florida Avenue Third New Jersey Avenue North Capitol Thirtieth B (north) Tenth Clifton J. District of Columbia reg. k at portable plant	T- Tweifth Sixth First Thirty-second B (south) Eleventh Columbia Road air force	Northwest Northwest Northwest Northwest Northwest do	\$517. 71 609. 29 39. 84 466. 58 7. 07 19. 16 10. 48 644. 92 3, 078. 04 388. 67
Total				5,871. <b>76</b>
	CAPITAL TRAC	TION CO.		
Eighth. Pennsylvania Avenue. H (north side). Eighth. F. Pennsylvania Avenue. M. Seventh (west). Eighteenth Do. H. Celorado Avenue. Minor repairs on various strees	K Fourteenth Third L Seventeenth Intersection of Eleventh Thirtieth B (north) E F Pennsylvmaia Avenue Fourteenth S, District of Columbia reg	Florida Avenue Fifteenth Twelfth M Eighteenth Thirty-second B (south) F Pennsylvania Avenue Twentieth Sixteenth	Northeast Southeast Northeast Southeast Northwest Northwest Northwest Northwest  do  do  do	\$492. 37 11. 81 19. 228. 44 281. 38 23. 77 206. 31 22. 05 14. 87 32. 26 64. 78 11. 38 2, 420. 22
BAL	TIMORE & WASHING	TON TRANSIT CO.		
Kennedy	Georgia Avenue	Ninth	Northwest	\$27.30
WASHING	TON, ALEXANDRIA	& MOUNT VERNON	co.	
Minor repairs on various street TABLE H.—Work done by				\$470.08 avenues,
TABLE H.—Work done by	i alleys,'' July 1, 1915	, to June 30, 1914.	•	
Granite block laid Asphalt tile relaid Coment walk relaid Grading		sql		19, 761 18, 249 28, 158 900 1, 630 5, 000 2, 501 12, 038 4, 855 1, 761 1, 033 692 3, 683 4, 500
Labor	•••••			\$38, 846. 06 28, 469. 45
Total	•••••	• • • • • • • • • • • • • • • • • • • •		66, 815. 50
Northwest section				\$9, 130, 64 8, 281, 15 22, 115, 47 27, 288, 34
			Coogla	06,815.50

TABLE I.—Regular permit, 1914.

_					į	Carb	<b>30</b> f.	Brick	
ę.	Location.	For whom done.	Grading.	Walk.		6 by 20 inches.	8 by 8 fnobes.	sidewalk relaid,	ğ
<u> </u>	East side Ninth Street NW., south of Market Space	Wash	S. Se.	Sq. pde.	Z36.70	Złm. ft.	Ltn. ft.	8g. yde.	\$443.40
5000	2522-2532 E Street NW  The Albemarie Seventeenth and T Streets NW  Night Street NW, from Rittenhouse Street to Quintans	T. F. Schneider Brightwood Building Corporation		28 88	170.00			8	828 233
8	A Street NE., from Fourteenth Street and Fourteenth Street from A to alley.	Chast, A. Peters.				348.28			<b>2</b> . 6
200	5316 Eighth Street NW North and south side of Hobart Street west from Mount	Brightwood Park M. E. Church.	88	240.00		,	983.55		1,074.45
86	Pleasant Street. 2302 S Street N, and rear on Decatur Street.	W. P. Lipsoomb Co		186.52	17.00		26.30	8	835.00
222	1940 Biltmore Street NW 225 South Capitol Street Toth side C Street SE between Twelfth and Thirteenth			17.93			144.80		<b>8</b> 22
ğ	Streets. North side Florida Avenue NE., west from Eckington	Judd & Detweller (Inc.)		159.97	15.20				158.18
2018 2018 2018	Flace. Alley, square 804. North side Quarry Road, west of Columbia Road Sherman Avenue NW. between Barry Place and Euclid	F. W. Ottinger. J. I. Peyser. C. T. Urnball.	8	174.62					21.8 21.06 21.06
800	Street, Street, Streets NW., square 3109			137.49	6.00				135.48
	401-1520 Killouria Street. 403-451 Randolph Street. Second Street and Maryland Avenue 8W	Alex. Miller		88.99 19.99		17.4			567.28 28.25
255	1730 M Street NW North side Fairmont Street, lot 46, square 2667 Net side Fairmont Street NW, Purwood Place to			883 722					2 <b>43</b> 868
D- 00	Perry. U Street, side lot 9, square 3534. 2810 Adams Mill Road.			67.31 50.17		71.80			55.55 8.83
	Lot 411, Adams Mill Road. Lot 111, Adams Mill Road. Angle Event of 104 109, square 2581.		<u></u>	2 2 2 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3	80.08				5555 5655 5665 5665 5665 5665 5665 566
	TOTAL TOTAL DEPOSIT OF STREET	laney.		2 4					1 S

Table I.—Regular permit, 1914—Continued.

						Curb set.	set.	Brick	
S.S.	Location.	For whom done.	Grading.	Cement walk.	reset.	6 by 20 inches.	8 by 8 inches.	sidewalk relaid.	Coat
ğ	North side Farragut Street, from Fourteenth Street east to	Lynchburg Investment Co.	Cu. gds.	Sq. yds.	Lin. ft.	Lin. ft.	Ltm. ft.	Sg. yde.	\$96.59
203 203 2038	siloy.  12 Adams Mil Rosd.  V est side Fourteenth Street NW., from Hamilton to In-	Le Roy Golf. Dayid bite. Lynchburg Investment Co.		28.85 8.83 8.83		51.00			102, 74 270, 78 270, 78
88888 88888	graham Street. 238-242 Park Road. 218-242 Park Road. Filth Street, front of lot 46, square 473. South side Hobert Street, west of Mount Pleasant. West side Mount Pleasant Street N w., betwean Kilbourne.	W. C. and H. Miller. A. C. Moses Construction Co. F. E. Brunninger. I bos. Armat.		51. 10 57. 00 79. 19	12.00	113.00	674.00	821	142.87 13.66 57.87 619.03
222	and Lemont Streets. 2942 Assoom Byreet. K. Street S east of First Street. Fifth Street N , south o' Upshur, and Upshur Street west	H. J. Gensler Michl. King. B. H. Gruver		37.88 181.88					221.87 221.87 38.98
2047	of Fifth Street. South side of Pabart Street, west of Mount Pleasant Street. North side a splor Street NW., between Fifth and Sixth	L. E. Brouninger. A. F. Fox & Co	28	98.00			574.00		619.02 100.00
2025 2025 2025 2025 2025 2025 2025 2025	Surects. Northwest corner First and F Streets S v. Also Expects S v. Als E Street N v. 4127 Eighth Street N v. 112-118 Sixteenth Street N v.	W. A. Landvoigt. Thos. A. Costello. Clarke v. agraman. Fred. A. Helimuller. S. D. P. Bailey.		183.54 45.73 88.45 32.00	141.40	66.00			85.58 85.08 85.08 85.08
	Total		238	4,177.22	628.39	809.68	2,251.74	Ħ	8, 779. 14

TABLE K.—Assessment work, 1914.

ş <u>e</u>			1		Curb set.		į	Vitrifled		Briok	Cernent	Old blue	٠,
	Location.	Grading.	walk.	6 by 20 inches.	8 by 8 inches.	old.	reset.	block peved.	block paved.	sidewalk laid.	eurb	gtone curb.	Cost
3013 I	Both sides McComb Street NW. between	Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yde.	Sq. yds.	Sq. yde.	Lin. ft.	Lim.ft.	
	35			28,50		8					1,931.80		\$1,031.60
_	Part I				2,253.05								2,848.87
	bla Road to Euclid Street												
_	Park Road and Newton Street.			:	1,009.14		9.40				:	:	1,306.53
-	Both sides Macomb Street   etween Thirty- third and Thirty-sixth Streets					118,16					2,954,95		1,707,88
3021	West side Lincoln Road, Letween R and		20.021										106 46
3023	South side of C Street NW., between Warren		2 2										ž 8
808	and Fourteenth Streets  East side Eighth Street NW Leiween Var-		71.33	<u>:</u>									97.#
	num and Webster StreetsAlley somera 2885		208, 52	:			<b>1.</b> 71	8	1 527 00	:			5 26% 44
38	Alley, north half square 2808	600.00						228.00	778.00				2,246.
_	Alley, square 5610							855.00	735.00				1,893.63
	East side Column in Road NW., 300 feet south				662 95								27 818
3040	East side Eighth Street SE., from Virginia				3		ş		:				
3041	North side H street SE., from Nichols Avenue		10.010				3						04 d/0
3042	to Railroad Avenue Iron end of walk North side U Street SE., Iron end of walk	8 %	301.16	24.07					:			Ī	484, 73
3063	to Tindall Street. South side B Street NE. from First Street		96.27					:				:	117.02
772	to reservation 26.		430.00	:			369.00				\		534.67
ş	Avenue to Thirteenth Street.		630.91				25.00						630,05
3045	Both sides Nichols Avenue from V to W		562.34				454 70						684 97
3046	South side W Street SE., from Fourteenth to	8	2K9 4A										17 003
908 000	East side First Street NE., from baggage room to H Street	3	350.85							380 88			345,29

TABLE K.—Assessment work, 1914—Continued.

- b	stone Cost.	Lin.ft.	\$1,039.90	102.21	100 79	257.06	462.36	1,455.53	719.27	706.34	713.86	45.94	254.01	268.80	1,007.38		95g A	0 000 m	000.70	1,081.08	196.63
Cement	curb set.	Lin. ft.								-			-	***************************************							10000000
Brick	sidewalk laid.	Sq. yds.						-	***************************************				***************************************	***********							
	block paved.	Sq. yde.																			Control of the Control
Vitrified	block paved.	Sq. yds.	-																		Section Section
Court	reset.	Lin. ft.				165.82					**********		140.00	136.00					90 00	20, 28	
	Old.	Lin. ft.										***************************************									
Curb set.	8 by 8 inches.	Lin. ft.	505.82						***************************************	-	*********										
	6 by 20 fnches.	Lin. ft.											***************************************							023, 32	
Camone	walk,	Sq. yds.	331,11	66.89	103.49	38, 66	471.96	1,184.01	577,39	706,86	733.01	37, 47	223,00	229,16	1,022.11	1, 483, 68	AE 080	20 20 20	202, 50	109.94	120.00
	Grading.	Cu. yds.		35.00																	1000
	Location.	North side V Street SE., between Fourteenth	and Fifteenth Streets. South side C Street SE, between Fourth and	Fourteen-and-a-half Street NE, between North Carolina Avanua and C Street	Fifteenth Street SE., between Massachusetts Avenue and B Street	South side E Street NE., from Tennessee Avenue to Fifteenth Street.		Both sides Twenty-second Street, between Minnesota Avenue and Rallroad Avenue	North side Minnesota Avenue SE., between Twenty-second and Nicholson Streets		Seventh Streets	orth side D Street SE., between Fourteenin	Avenue west to alley	orth side F Street NE., from Fourteenth Street to Tennessee Avenue	North side Florida Avenue N.E., irom I wellth to Trinidad Streets.	Soth sides K Street NE., between Third and Fifth Streets		South side East Capitol Street, from Thir-	Both sides I Street SE., between Eleventh	South side A Street NE. between North	Carolina Awanna and Pourtaanth Streat
4	No.	040 N	000	1901 F	052 F			-		-	_	_				1063 E	8064	8 5908	990	2908	-

: :				808.38	8	5	1	•	;	401.46	8 3	1, 200 26, 50	146	200,2	38	85	4 25 25	1.267.83	22.58	10, 61	8
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		:											8	_							
		•			_			_			270.00	80.00		8		88	 B.91.1				
											1,811.00				88	3			_		
18.00 18.00			281.80	688, 40	8								1 640 00					8 5			
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	:	:	<del>-</del>									921.08						301, 12	-		
230,16		343.76	<del>-</del>		8							190, 48	<u> </u>	<del></del>	<u> </u>	<u> </u>					
248.88	400,07	135.20	322.00	763, 97	980		253			476.00			146,30				409 19				
			***************************************											1,650.00	123.00		900.000				
West add Second Street SE, between L and M Streets North side C Street SE, between Eighth and Nuth Streets.	to Sumner Streets  to Sumner Streets  to Sumner Streets  to Harvest NE. hetween Fourteenth	and Fifteenth Streets.	Ninth Streets.	orth side North Carolina Avenue SE., be- tween Sixth and Seventh Streets.	ast and west sides Fifth Street SE., between	East side Fourth Street from Nichols Avenue	South side Alabama Street, from Nichols	Avenue to Fifth Street.  East side Fifth Street, from Alabama Avenue to Savannah Street.	South side Alabama Avenue, from Fifth to Sixth streets.	W Streets South side H Street NE., between Fifteenth Street and car barn	Alley, square 1007 South side Fuller Street NW., between Avenue	of Presidents and Seventeenth Street	Fifth Streets N.E., Detween Fourth and Fifth Streets.		Alley, square 2846	Allows, square 3533.	Augy, square 2222	East side of Eighth Street SE., between L Street and Polomac Avenue	North side D Street NW., between Third and Fourth Streets	between First Street	South side of R Street and Florida Avenue, be- twoen First and Third Streets.

Table K.—Assessment work, 1914—Continued.

		86 TROS	278.40	92 32		201.00	333.20	87.08		261.62	175.88		28.8	128.28	\$ \$	24.80		1,067.54	88		Z, 090. 91	<b>40.78</b>		97 980	667.58	98		245.54	546.81		200.00	1,754.06	2.800.70	98
													:	<u>:</u>																				
******			:		_	<u>:</u>				:	_	_	:	:	:				_		<u>:</u>					-				_	<u>:</u>			
										:					3.3		-	32.00	17.00		:										:			
			•			:				9.04	_				•			**															-	
				_									:					<u> </u>			72 - 200 97		-	28.08	488.95	8		201.45	57	<u> </u>	36 10.42	<b>3</b>	2 114 16	
141.00		100 M	218.31	205, 58		2 TE	271.80	280 83		204.64	143.47		88	182.72		280.39		402.39	81.06		/Ac. 5/ 07/1.15	33.27						:	445.57		202.36	1, 320, 43		
		470.50																**********		Ī					-									
South side W Street, between North Capitol and First Streets	rtle Avenue NE., from South Da-	Cirhtaenth Street NW hetween	ts	East side Twentieth Street NE., from Rhode Island Avenue to Jackson Street	South side Lawrence Street NE., from Eight-	Seventeenth Street NE. between	Brentwood Road and Rhode Island Avenue.	of Irving Street NE., between Six-	South side Monroe Street NE., between Seventh	and Eighth Streets	In Street and Brentwood Road	South side Columbia Road, from Eleventh	Street to Sherman Avenue	3101 Fourteenth Street to Kenyon Street NW.	South side Rittenhouse Street, between Mirch		Both sides Trumbull Street, between Sixth and	Seventh Streets.	to north line lot 801.	West side Sherman A yenue, between Columbia	Road and Kenyon Street.	enth and Eighth Street	ss Kalorama Road, between Twenty-	South side W Street NW. between Fifteenth	and Sixteenth Streets	Both sides V Street NW., between Flagler Place	North side V Street NW., between New Hamp-	shire Avenue and Seventeenth Street	6				North side H Street NE., between Sixth and	North side Eighth Street SE., between L and M

TABLE K .- Assessment work, 1914-Continued.

Z M M Z M Z M Z Z Z Z Z Z Z Z Z Z Z Z Z	800.74	2, 628, 98	99 785 00 785 00	150.63	347.01	1,969.74	874.00	101.48	212.61	196.93	127.25	1,307.83	98.98		270.68		370.18	78.67	183.17	604. 55	300.46	201.40	1,116.02	3		3
North side Starting to Street Charten Road, between Georgia Avenue and Several Street Charten Road, between Counting Road and Early Avenue, between Counting Road and Early Street Charten Road and Early Flace Charten Breet Road and Early Flace Charten Road and Early Early Street Charten Road and Early Road and Early																						:				
Courtie A venue and Several Street control Road of Courties A venue and Several Street control Road and Environmental Street Courties Road and Environmental Road and Environment	•																	:				:				
Courtie A venue and Several Street control Road of Courties A venue and Several Street control Road and Environmental Street Courties Road and Environmental Road and Environment	:							_				-										<u>:</u>	:		<u>:</u>	
Courtie A venue and Several Street control Road of Courties A venue and Several Street control Road and Environmental Street Courties Road and Environmental Road and Environment															-		-			_			<u>:</u>		<u> </u>	
North side Rock Creek Clarrent Kond.  Seat side Georgia Avenue, between Guaken.  Does and Tuckerman Streek.  Best side Georgia Avenue, between Guaken.  Does and Tuckerman Streek.  Best side Georgia Avenue, between Guaken.  Best side Seventh Streek NW, between Columbia Rock and Harvard Street NW, between Columbia Rock and Harvard Street NW, between Columbia Rock and Harvard Street NW, between Nine-Both sides Fuller Street NW, rom Heraly-annih Rock Both sides Fuller Street NW, rom Heraly-annih Rock Both sides Fuller Street NW, rom Rock Both sides Rock Sides Street														·			<u>:</u>	<u> </u>				158.88	<u>!</u>		<u>.</u>	· · · · · · · · · · · · · · · · · · ·
Georgia Avenne Burels Rucel, De and Several Street  East side Georgia Avenne between Quacken  Beat side Georgia Avenne between Quacken  East side Ocorgia Avenne between Quacken  East side Streets Avenne, New Derween  Beat side Georgia Avenne, De avene  Beat side Georgia Avenne, De avene  Beat side Streets NW, north from  Dahlis Street Street NW, north from  Beat side Street NW, from Seven  Mount Pleasant Street NW, from Seven  Beat side Barvard Street NW, from Seven  Beat side Barvard Street NW, from Seven  Beat side Columbia Road, Detween Nine-  Beat Side Raissa Avenue of the Presidents  North side Columbia Road, Detween Randolph  and Shepherd Street NW, from Georgia  Avenue to Fourteenth Street to Mo-  Street to alley  North side Columbia Road, and south side  Ocht side Barvard Street from Avenue of the  Presidents of Columbia Road, and south side  Columbia Road, from Harvard Street from Avenue of the  Presidents and Shepmerd Street from Avenue of the  Presidents and Shepmerd Street from Avenue of the  Ocht side Street.  West side Edwenth Street from Avenue of the  Presidents and Street from Harvard Street from Fifteenth Street from Harvard Street from Harvard Street from Street from Fifteenth Street from Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Stree	180.00	<u> </u>	<u>:</u>						20.02	202.30							<u>:</u>		:			<u>:</u>	<u>:</u>		<u>:</u>	
Georgia Avenne Burels Rucel, De and Several Street  East side Georgia Avenne between Quacken  Beat side Georgia Avenne between Quacken  East side Ocorgia Avenne between Quacken  East side Streets Avenne, New Derween  Beat side Georgia Avenne, De avene  Beat side Georgia Avenne, De avene  Beat side Streets NW, north from  Dahlis Street Street NW, north from  Beat side Street NW, from Seven  Mount Pleasant Street NW, from Seven  Beat side Barvard Street NW, from Seven  Beat side Barvard Street NW, from Seven  Beat side Columbia Road, Detween Nine-  Beat Side Raissa Avenue of the Presidents  North side Columbia Road, Detween Randolph  and Shepherd Street NW, from Georgia  Avenue to Fourteenth Street to Mo-  Street to alley  North side Columbia Road, and south side  Ocht side Barvard Street from Avenue of the  Presidents of Columbia Road, and south side  Columbia Road, from Harvard Street from Avenue of the  Presidents and Shepmerd Street from Avenue of the  Presidents and Shepmerd Street from Avenue of the  Ocht side Street.  West side Edwenth Street from Avenue of the  Presidents and Street from Harvard Street from Fifteenth Street from Harvard Street from Harvard Street from Street from Fifteenth Street from Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Street from Fifteenth Street from Harvard Street from Fifteenth Stree		<u></u>								_							:				3	:			-	
North side Rock Creek Church Road between Gueral Avenue and Seventh Street  East side Georgia Avenue, between Quacken  East side Georgia Avenue, between Quacken  East side Georgia Avenue, between Quacken  East side Georgia Avenue, from Farragut to  West side Fifteenth Street NW, between Co-  Limbia Road and Harvard Street  Mount Pleasant Street NW, from Beveen  Mount Pleasant Street NW, from Seven-  Both sides Fuller Street NW, from Georgia  North side Street NW, from Seven-  North side Columbia Road NW, from Elev-  Both sides Sherman Avenue NW, from Seven-  Both side Sherman Avenue NW, from Georgia  Avenue to Fourteenth Street to Mo-  Presidents to Columbia Road, and south side  Columbia Road, from Harvard Street to Mo-  Presidents to Columbia Road, and south side  Columbia Road, from Harvard Street from  Fifteenth Street to alley, square 2700.  Figes to Harvard Street, from Hobart  Flace Sudit Hobart  Street	:	1,210.7		-								_					<u>:</u>			458.4	207.1		846.7		1,049.	7.7
Georgia Avenne and Seventh Street  East side Georgia Avenne, between Quacken  Bas off Turkerman Streets  East side Georgia Avenne, browen Quacken  Best side Georgia Avenne, from Farngut to  Heamlion Streets  Heamlion Streets  Heamlion Streets  Bast side Sevenub Street NW, between Co-  Least side Sevenub Street NW, between Co-  Least side Sevenub Street NW, between Seven-  Best side Streets Street NW, from Seven-  Bent sides Fuller Street NW, from Seven-  Bent side Kalorama Road, between Nine-  Bent side Romania Road, between Nine-  Bent side Street NW, from Seven-  Bent Side Streets  Roth side Streets  Roth side Street NW, from Georgia  Avenue by Fourtleth Street  Best side Streman Avenue NW, Barry Place  Best side Burvard Street from Avenue of the  Persidents to Columbia Road, and south side  Columbia Road, from Harvard Street to Mo-  East Place  Best side Street Sand Allison Street from  West side Burvard Street from Webster  For Allison Streets, and Allison Street from  West side Monn Pleasant Street, from East  Capitol Streets  Alley Square 237  Alley Square 237  Alley Square 237  Alley Streets  Bouth side I Street NW, from Et to  F Streets  Both sides Eighteenth Street NW, from Et to  F Streets  Both sides Eighteenth Street, Inventy-  Both sides Eighteenth Street, Inventy-  Sevend Streets, and orth side H  Streets WW, from Twenty-first to Twenty-  Sevend Streets  Both side Burvard Street, and north side H  Streets WW, from Twenty-first to Twenty-  Sevend Streets.		8	\$	8	8	8	8	8	£	8	- 88		88		8		31	72	13			<u>:</u>	<u>!</u>		<u> </u>	
North side Reck Creek Church Road between Georgia Avenue and Seventh Street  Sat ald Georgia Avenue, between Quacken  Best side Georgia Avenue, between Quacken  Best side Georgia Avenue, between Quacken  Best side Georgia Avenue, between Co-  Limbia Road and Harward Street  Best side Street Street NW, between  Mount Pleasant Street NW, from Beveen  Both sides Fuller Street NW, from Seven  Both sides Fuller Street NW, from Seven  Both sides Fuller Street NW, from Georgia  Street to alloy  North side Street NW, from Seven  North side Street NW, from Elev-  Both side Street Street NW, from Beveen  North side Columbia Road NW, from Georgia  Avenie to Fourteenth Street  North side Shepherd Street  North side Shepmen Avenue, between Randolph  Street to alloy  Residents to Columbia Road, and south side  Columbia Road, from Harvard Street  East side Sherman A venue, NW, from Georgia  Avenue to Fourteenth Street toon Avenue of the  Presidents to Columbia Road, and south side  Columbia Road, from Harvard Street  East side Street is and Allison Street from  Fifteenth Street to alley, square 2700.  Fifteenth Street to alley, square 2700.  Figes to Harvard Street  Such Street to alley, square 2700.  Figes to Harvard Street  Such Street to alley, square 287  Suffered NW, between Tenth and Eleventh  Streets  Alley, square 287  Suffered Street  Such Street Street NW, from Hobart  Streets  Alley, square 287  Suffered NW, from Twenty-first to Twenty-  Second Streets  South side Stipteenth Street NW, from Twenty-  Second Streets  South side Between Twenty-first to Twenty-  Second Streets  South side Between Twenty from East of Twenty-  Second Streets  South side Between Twenty-first to Twenty-  Second Streets  South side Between Twenty-first to Twenty-  Second Street NW, from Twenty-first to Twenty-  Second Street NW, from Twenty-first to Twenty-  Second Street NW, from Edithenth to	<b>€</b> ::			130.				<u> </u>			103.	1.066.			- 22		<u></u>	·:	135.	_		<u>:</u>	<u>:</u>		<u>:</u>	
North side Rock Creek Cluture Burest  Bast side Georgia Avenue, brown Guacken  Boa and Tuckerman Street  Boa and Tuckerman Street  Boan and Tuckerman Street  Boan Street  Boa			-						-				124		0.3		-	-	-			-				
N N N N N N N N N N N N N N N N N N N	rib side Rock Creek Church Road, between eorgia Avenue and Seventh Street	te side Georgia Avenue, between Quacken- oe and Tuckerman Streets	amilton Streets	st side Fifteenth Street NW., between Co- imbia Road and Harvard Street	t side Seventh Street NW., north from abilia Street, square 3174.	rth side Harvard Street NW., between ount Pleasant Street and Adams Mill Road.	h sides Fuller Street NW., from Seven- enth Street to Avenue of the Presidents	th side K Street N W., from Twenty-ninth treet to alley	Road, between Streets	th side Columbia Road NW., from Elev-	stylde Kansas Avenue, between Randolph	th side Shepherd Street N.W., from Georgia venue to Fourteenth Street	t side Sherman A venue NW., Barry Place Euclid Street	st side Harvard Street from Avenue of the residents to Columbia Road, and south side	olumbia Road, from Harvard Street to Mo-	t side Fifteenth Street NW., from Webster Allison Streets, and Allison Street from	iffeenth Street to alley, square 2700st side Mount Pleasant Street from Hobert	lace to Harvard Street.	st side Fourteenth Street NE., Irom East apitol Street to alley	treet N W., between Tenth and Eleventh	st side Eighteenth Street NW., between F	b sides Eighteenth Street NW., from E to	Streets th side H Street NW., from Twentieth to	wenty-second Streets, and north side H treet NW., from Twenty-first to Twenty-	th side H Street NW., from Eighteenth to	Nineteenta Streets
L R R R R R R R R R R R R R R R R R R R		34	Щ	lu lu	ESS	MW W	906 Bot	Sou							0 82		1									

TABLE K.—Assessment work, 1914—Continued.

				Curb set.			Citrified		Apjad	Camant	Old blue	
Location. G	Grading.	walk.	6 by 20 inches.	8 by 8 fnches.	Old.	Curb reset.	block paved.	block paved.	sidewalk laid.	curb set.	stone curb.	Cost.
Both side Eighth Street NW., between Jeffer-	Cu. yes.	89. yas.	Lita. Jt.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	Lin. ft.	Lin.ft.	02 0020
Both sides Kennedy Street NW, between Georgia Avenue and Ninth Street			00.00	125.45		85.15				1, 320, 00		810.90
offi sides Twenty-first Street NW., between K Street and New Hampshire Avenue.				2 132 63								18 192 6
West side Eleventh Street NW., between Clif- ton Street and Columbia Road				600 75								741 44
South side Franklin Street NE, between			94 46	2000							200 000	441.44
Both sides Illinois Avenue, between Kennedy					21 10						023.20	00.00
00.00	***********				04.10		1 074 00	**********		1,459.19	18.40	9 553 03
Alley, square 1.01 (built 17 cubic yards cement		177 00	0 0									21,000,00
Alley, square 1302.	350.00	711.00	9.42			65.00	730.00		_			1 411 85
:	120,00						160.00					429.19
1.4	98,00	96.00					***************************************		19			310,96
		336.72	***************************************	***************************************		65.50			***************************************		***************************************	356.75
reet N W., Detween		270,16										266, 25
South side of S Street NW., between Twelfth and Thirteenth Streets	T	FG . 0977				208 55						204 00
West side Delaware Avenue, from L to N Streets.		700.78				14.80						689.50
South side Decatur Place, from Twenty-second Street to Massachusetts Avenue	925.00	212, 13										741.28
West side Four-and-a-half Street SW., between												
East side Eirbth Street NW. from S to School		843,07	120.00			248.60		***************************************				945.42
Streets		280.88	***************************************									273, 55
Orth side H Street NE., between Sixth and Twelfth Streets				9 tan ta								0 000 0
		1 058 40		_								4,000,10
North side C Street NW., between Seventeenth		966 13										1, 035. 03

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TABLE L.—Sidewalks and curbs, 1914.

No.   Blow School, Nigsteanth Street and Pennings Road.   Location.   So, yds.   So, yds.   Lin. /cd.   Lin. /cd	Blow School, Nineteenth Street and Bennings Road   Seq. yds.   S	Lin. feet. Lin. feet. 60,000 90 194,90 1194,90	Jos. 10 Joseph 1	200.00 201.00 20
Second   Market School   National Street and Bennings Road   18   19   19   19   19   19   19   19	Blow School, Nineteenth Street and Bennings Road   Sir. Not   Si	Sq. yda. Lin. feet. Lin. feet. 60.00 99 90 194,90	feet. Lin. feet. 288.00	2600 94 261.26 261.26 265.11 245.80 245.80 15.90 15.90 16.80 25.80
Blow School, Nineteenth Street and Bernings Road.   238.00   366.00   388	Blow School, N incteanth Street and Bennings Road   2.78, 0.6   2.99   2.00	999 900 66,000	288.00	600 22:25 22:25:25 23:25:25 25:25:25 25:25:25 25:25:25 25:25:25 25:25:25 25:25:25 25 25 25 25 25 25 25 25 25 25 25 25 2
Control Market School, Twenth and N Streets NE.   Control Market School, Twenth and N Streets NE.   Control Market School, Laward Street SE.   Control Market School, Twenth and Street SE.   Control Market School, Laward Street Set.   Control Market School, Laward Street Set.   Control Market School, Street NA.   Control Market School, Street Market Market School S	West School, Noticest Signature Signature Signature Signature Signature School, Noticest Signature School, Leventh and G Streets Signature School, Leventh Streets Signature School, Detroit and Twelfth Flaces.    Type School, Leventh Street New, Letween Sixth and Seventh Streets   113.17   113.17   114.17	90 40 194, 90		22.55 22.25 22.25 25 25 25 25 25 25 25 25 25 25 25 25 2
West School, (front of)   194,00   19	West School (front of)   100, 47   100, 49   194, 90	169		22, 28, 28, 28, 1, 28, 28, 28, 28, 28, 28, 28, 28, 28, 28
Marry School, Defreed front and Twelfth Place. Control High School, O Street NW, between Sixth Birders   113.17   169   28   522.62   123.17   149.52   120.17   12	Matury School, Britact front and Twentine Place.         Matury School, Britact front and Twentine Place.         19, 90         388,75           Central High School, O Street NW, between Sixth and Seventh Streets.         113, 17         166,19         29         28,75           Reservation School, K Street NE, between Fifth and Sixth Street sides.         200,79         204	164, 80		1, 1, 1,55,85,95 1,55,85,95 1,55,85 1,
Conversion of Street NW, between Sixth streets   113.17   166   286.26	Reservation   O Street NW, between Sixth and Seventh Streets   113.17   160   288.75	160		2.53.53.54 2.53.53.54 2.53.53.54 3.53.54 3.53.54 3.53.54
Account for Servet NE., between Fifth and Sixth Streets   145.16   165.16   204	Hoservation 204   Around Reservation 205   Around 2014 Perservation 205	AQT		
Accord Reservation 13, Test and Vertical Street Loader Avenue and Seventh Street Loader Avenue and Street Loader Seventh Street Loader Street Stree	Around Reservation 20, North Carolina Avenue and Seventh Street sides, 200 79 204 79 204 79 204 79 204 70 70 70 70 70 70 70 70 70 70 70 70 70	_		2. 2.2. 2.2.2. 2.2.2.
Reservation 220, North Carollan Avenue and Seventh Street sides.   200, 50   121, 01   123, 60   121, 01   126, 53   123, 60   121, 01   126, 53   123, 60   121, 01   126, 53   123, 60   121, 01   123, 60	Reservation 230, North Carolina Avenue and Seventh Street sides.   200, 79   204, 52   224, 65	28 622.62		<u>श्</u> रु इंद्रु
Reservation 125, Eighth Street front, between k Street and Virginia Avenue SE. 145.55   Warder Street study retreated front, between k Street to alley   182.00	Comparison   Com	:		12.50
Second of this control of the state of the	Warder Street side, school sile, squares to antey Warder Street side, school sile, squares to antey Warder Street side, school sile, squares to antey Around About School Reservation bile, squares to an I Streets West side New Hampshire Avenue, Eighteenth and I Streets West side New Hampshire Avenue, abutting Reservation 139, at Twenty-second Street K. Street side of Western Market Thirteent of Nestern Market Thirteent of Reservation 297 Therest side, Reservation 297 Thirteent side, R	10101	•	206
Around Abbott School.   Beervation 130, at Twenty-second Street   171.62   1	Around Ablott School  Reservation 145, New Hampshire Avenue, Eighteenth and I Streets  West study we Hampshire Avenue, Eighteenth and I Streets  West study we Hampshire Avenue, Butting Reservation 139, 11 Wenty-second Street  K Street Study of Western Market  K Street study of Western Market  Thirteen study of Western Market  Ansocsia Pumping Station, Eighteenth and Minnesona Avenue SE  Ansocsia Pumping Station, Eighteenth and Minnesona Avenue SE  Grover Cloveland School, Eighth street NW, between S and T Streets  Ansocsia Pumping Station, Eighteenth and Minnesona Avenue SE  Around Cloveland School, Eighth street NW, between S and T Streets  Andered States  Around Cloveland School, Eighth Street Sand T Streets	326.84		619.56
Reservation 145, New Hampshire Avenue, Eighteenth and I Streets   60,00     West state New Hampshire Avenue, Eighteenth and Streets   171 62     K Street State New Hampshire Avenue, State New Hampshire State Stat	Reservation 143, New Hampshre Avenue, Eighteenth and I Streets   60,00		÷	726.44
17.1 62   West state New Hampshup Avenue, about the Reservation 13.4   1   17.1 62   16.5 63   10.5 64	West side wew Hampster Avenue, abouting Reservation 139, 41   Wenty-second Street   171, 62		<del>:</del> -	3 E
K. Street side of Western Market   100, 00     Street side of Western Abriet   100, 00     Street side of Reservation 29. Twentieth Street to Pennsylvania Avenue.   100, 00     Street side of Reservation 29. Twentieth Street to Pennsylvania Avenue.   100, 10     Street side of Reservation 27. Twentieth Street to Pennsylvania Avenue SE   100, 10     Street side of Reservation 27. Twentieth and Minnesona Avenue SE   100, 10     Street side of Reservation 17. New York Avenue, Find and Streets.   100, 10     Street side of Reservation 17. New York Avenue, Find and Twenty-first Streets, front of market   100, 10     West side Four-and-a-half Street between A and N Streets.   100, 10     Street side Four-and-a-half Street St	Extreme side of Western Market. Thirteen side of Recervation 297 T		•	16.5
Thirteenth street side of Recervation 267.   The control of Recervation 267   The control of Rece	Thirteenth street side of Reservation 287  Thirteenth street side of Reservation 287  Thirteenth street is a street side of Reservation 287  Ansocain Pumping Station. Eighteenth and Minnesona Avenue SE  Ansocain Pumping Station. Eighteenth and Minnesona Avenue SE  Grover Cleveland School. Eighth street NW, between S and T Streets  Around Cleveland School. Eighth street NW, and the street NW, between S and T Streets  Around Cleveland School. Eighth street NW, solve SE  Around Cleveland SCHOOL. Eighth stre		:	602.9
Structuc and a ventue of the control of the contr	Ansocsta Purping Station, Eighteenth and Minnesota Avenue SE Around Old Fost Office Building.  1,573.18		ᆣ.	124 88 88
Grover Cleveland School, Eighth street NW, between 8 and T Streets   1,673,18   1,683,19   1,683,19   1,683,19   1,673,18   1,673,	Grover Cleveland School, Eighth street NW., Detween 8 and T Streets Around Old Post Office Building.		16	287.93
Around Old Fost Office Building.  Around Streets NW. Fost Weather and Twenty-first Streets. Front of market.  West side Four-and-a-half Street, between Twenty-first Streets.  Total  Around Old Fost Office Building.  Around Streets.  Around Old Fost Office Building.  Around Around Streets.  Around Old Fost Office Building.  Around Old Fost Offic	Around Old Post Office Building		•	307.83
Taught Online, Severation 177, New York Lawrence   La	Division Comments of the Comme			 88 88 88
Twenty-first Street N W., between K and L Streets, front of market.         909         909         100, 00           K Street NW., between Twentieth and Twenty-first Streets, between A and N Streets.         Streets, front of market.         100, 00         100, 00           West side Four-and-a-balf Street, between A and N Streets.         Streets, between Twentieth and Twenty-first Streets.         100, 00         100, 00           Total         1,008         560         1,225.37         775.44         1,189.80	Patento Unice Seventia, F. and us Eureles in W. December 17 Nature Vorle A common With and I. Streets		÷	37.5
K Street N.W., between Twentieth and Twenty-first Streets, front of market.         281.72         60         7         100.00           West side Four-and-a-ball Street, between a and N Streets.         8,611.72         1,068         560         1,225.37         775.44         1,189.80	Twenty-first Street NW, between K and L Streets	608	_	160, 43
West stde Four-and-4-half Street, Detween As and N Streets	K Street NW., between Twantich and Twanty-first Streets, front of market.	99	<del>-</del>	2.8
8,611.72 1,068 660 1,226.37 775.44	West side Four-and-a-half Sireel, between A, and N Streets.			288.78
	8,611.72 1,068 660 1,226.37 778.44	1,068 560 1,225.37		11, 509. 66

	Cost.	\$791.07	1,824.28	393.76	22.2	9.75	40.55	66.75	411.45	1,997.56	3,181.01	238.63	4,567.41
	Description of work.		Clearing right of way		Laid 6 732 somera faat	flooring. Repair cribbing	Laid 68 linear feet cop- ing.		Bituminous cost	Spread and roll mac- adam.	Regulate and prepare subgrade.	Bituminous coat	Spread and roll stone
As-	phalt block relaid,	Sq. yds.						210	-	-			
As-	phalt block laid,	Sq. yds. Sq. yds.	875.0	174.0						-		**********	
Vitri	ned block relaid.	Sq. yds.						*******				********	
Gran-	block relaid.	Sq. yda.											
Brick	walk relaid.	Sq. yds.								***************************************			
80t.	8 by 8 inches.	Lin.ft. Sq. yds.											
Curb set.	6 by 20 inches.	Lin.ft.						***************************************		-			
	reset.	Lin.ft.		3						***************************************			
Comont	side- walk,	Sq. yds.			1010		13	-		-			
_	Grad- ing.	Cu.yds. Sq.yds. Lin.ft.								***************************************		150	
	Appropriation.	Elimination of grade crossings.	Q Street Bridge	Buildings fire depart- ment, District of Co-	Parking commission do	tia Bridge, Elimination of grade	Water department, high service.	C Street NE., First to	Twenty-third Street, Kalorama Road to S	Street. Chesapeake Street NW., Wisconsin Avenue to	Connecticut Avenue NW., Newark to Til-	Fuller Street NW., Six- teenth to Seventeenth	Streets.  Macomb Street NW., Thirty-third to Thir- ty-sixth Streets.
	Location.	D Street NE., between New Jersey Avenue and Delaware Avenue.	O Street Bridge South side Massachusetts Avenue NE. between	North Carolina Avenue, between Sixth and Sev-	1811 O Street NW. 1403 Twelfth Street NW	E Street NE., between	Massachusetts Avenue	CStreet NE., from First to	Twenty-third Street NW., Kalorama Road to S	Street. Chesapeake Street NW., Wisconsin Avenue to	Connecticut Avenue NW., Newark to Tilden	Fuller Street NW., Six- teenth to Seventeenth	Streets.  Macomb Street NW., Thirty-third to Thirty- sixth Streets.
1	No.	0100	6013	9109	6018 6020 6021	_	2209	0109	2021	2041	0209	5121	5181

TABLE M.—Miscellaneous work, 1914—Continued.

_				Camant		Curb	Curb set,	Brick	Gran-	Vitrl-	As-	-sv		
No.	Location.	Appropriation.	Grad- ing.	side- walk.	Curb reset.	6 by 20 inches.	8 by 8 inches,	side- walk relaid.	block relaid.	fled block relaid.	phalt block laid.	phalt block relaid.	Description of work.	Cost.
	Macomb Street NW., Connecticut Avenue to	Macomb Street NW., Connecticut Avenue	-	Cu.yds. Sq.yds. Lin.ft.	Lin. ft.	Lin.ft.	Lin.ft.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds. Sq. yds	Sq. yds.	Spread and roll stone	\$2,731.49
	Ross Road, Ontario Road NW., Col- umbia Road south of	to Ross Road. Ontario Road NW., Col-	***************************************		***************************************								Bituminous coat	249.84
-	Euclid Street. Rhode Island Avenue NE., Lincoln Road to North	Euclid Street. Rhode Island Avenue NE., Lincoln Road to					***************************************						Grade and shape road-	161.13
_	Seventeenth Street NW., Enclid Street to Colum-	North Capitol Street. Seventeenth Street NW. Findlid Street to Col-	***************************************									-	Bltuminous coat	11.661
	bia Road.  V Street NW., Flagler Place to Eleventh Street.	umbia Road.  V Street NW., Flagler Place to Eleventh				1	-					245		58.83
_	Street NW., between Seventeenth and Eight-	Street, NW., between Seventeenth and								-			Regulating	432.75
2002	North side C Street NW., between Seventeenth	Engateenta Streets.	-				430, 42		*******					543.28
		Franklin Street NE., Twenty-second Street								-	i	-	Repairing water service.	10.00
_	Kalmia Street NW., to Rock Creek Park.	Grade and improve Kal- mia Street.						-					Subgrade and spread- ing stone.	4
	Rosedale Street NE., be-	Grade and improve Rose-				709.36							Rolling	920.87
	Seventeenth Streets. U Street NE., North Capi-	Pave U Street NE				84.46								104.66
_	Wisconsin Avenue NW., between R and Thirty-	Georgetown schedule											Removing old curb, etc.	294.69
	M Street NW., between Fitteenth and Sixteenth Street	Northwest schedule	1,250					370						250.25 216.73

<b>8</b> .62	<b>3</b>	786. 67	270, 50	468.93	2, 045. 47	1, 174. 69	687.71	335.40	2,028.39	156.33	1,967.96 9.75	2, 840.59	744.13	1, 482.60	1,934.40	571.45
						Preparing subgrade	``		Spread and roll mac- adam.	Laid 320 feet terra- cotta drain tile.	Relay gutter crossings.	Preparing subgrade and spreading stone.		Spread and roll stone	Grade and spread stone	Grading and regulating.
		:								<u>:</u>						
<u>:</u>			01	:	:				<u>:</u> :	<u>:</u>	62		:		.35	
187			75 300		:											
<del>-</del>	280.07	581.04		398. 10	1,674.50		564. 04			<u>.</u>			:			
<u>:</u>	:			:												
+	:		:		<u>:</u>					<u>:</u>						
<u>.</u>				<u> </u>	<u> </u>	<u> </u>				te	224	550				<u></u>
do	do	do	Southwest schedule	Northeast schedule	фф	Southeast schedule	do	Georgetown schedule	Improve Adams Street	Improve Eleventh Street NW.	Grade and improve IIII-	nedy Street. Grade and improve Sixteenth and Rosedale Streets NE.	Grade Thirteenth Street NE.	Grade and improve Eighth Street NW., Jederson to Longiel-	Grade and improve	Oracle Hamlin Street NE.
V Street NW., between	and Seventeenth Street. Eighteenth Street NW., between C Street and.	Virginia Avenue. Both sides of V Street NW.	Tenth Street.	East side Eighth Street NE., between K and L	Streets. Both sides K Street NE., between Fifth and Sev-	South Carolina Avenue	and Thirteenth Street.  Both sides of South Caro- line Avenue SE., be-	teenth Streets. Wisconsin Avenue NW., between R and Thirty-	fourth Streets. Adams Street NW., North Capitol to First Street.	Eleventh Street NW., Clifton to Columbia	floor Avenue and Ken- nedy Street NW	Sixteenth and Resedale Streets NE.	Thirteenth Street NE., Rhode Island Avenue to Franklin Street.	Eighth Street NW., Jeffer- son to Longfellow Streets	Franklin Street NE., Twenty-second Street	estward. Hamila Street NE., Twelfth to Thirteenth Streets
1804	999	1507	1001	27.0	202	708	1806	<b>1</b>	2031	<b>5</b>	5002	1125	1629	1905	Ting	5141

TABLE M. - Miscellaneous work, 1914-Continued.

		Cost.	\$1, 129.08	586. 42	466.50 7.59 827.87	1,362.22 519.94	6,688.73	55, 159. 37
		Description of work.	Spread and roll stone \$1, 129, 08	Grading	Erecting steps.	do	Filling and setting 14 manhole covers; 20 cubic yards concrete in trenches; graveling 2,000 square	56, 150.87
	A.P.	block relaid.	Sq. yds.			300		755
	4	laid.	Sq. pds.				•	110 1,471.7
		block relaid.	Ou. yds. Sq. yds. Lin. ft. Lin. ft. Sq. yds. Sq. yds. Sq. yds. Sq. yds. Sq. yds.					_
	Gran d	blocks relaid.	Sq.yde.					. 500
	Brick	walk relaid.	89. yds. Lin. ft. Lin. ft. 89. yds.				3,676	4, 283
	Curb set.	6 by 20 8 by 8 inches.	Lin. fl.					793.82 3,929.07
	Court	6 by 20 inches.	Lin. ft.					
	į		Zin. fl.			006	•	986
	Cement	ing. walk.	Sq. yds.					33
	2	ing	Cu. yde.				3,000	6,517
		Appropriation.	Grade and improve	Inprove Rhode Island Avanue NE.	Parking commission.  Quarry Rode Barkance to Erecting steps.	Elimination of grade crossing.	Improvement of Plasa	
		Location.		Street. Rhode Island Avenue NE., Lincoln Road to Fourth	6006 Various Streets		ర	Total
Í	,	g.	5	1763	888	0208	78	

TABLE N.—Whole-cost work, 1914.

S.S	Location.	For whom done.	Grad- ing.	Grad- Cement Ourb ing. walk. reset.		Carb set, 8 by 8 inches.	Vitri- fled block.	A.p. phalt block.	Terre- cotta pipe.	Description o work.	Çoşt.
58	Rest of 1632-1634 Newton Street NW Avence of Presidents and New Hampshire Ave-	Thos. Somerville. Metropolitan Coach Co	Ok. 9de. 2.50	Sq. yda. 5.00	Ou. yes. Sq. yes. Lin. A. Lin. A. Sq. yes. Sq. yes. Lin. A. 25.00	Lin. A. Sq. yds. Sq. yds. Lin. A. 25.00	Sq. yds.	Sq. yde.	Lin. A.	Lowering curb. Changing curb at inter- section.	120.88
888	601   Street NW   L. Kolipinski   L. Kolipinski   H. Egibinski   L. Koryon   D. Street entrance, deorgetown University   V. L. Goldon   V. Goldon   L.	L. Kolipinski. J. T. Kenyon. V. L. Golden.		1.50		8					4°Ğ 828
	2302 S Street NW. Eleventh Street NW., between Buchld and Fairmont Street.	W. P. Lipscomb Co Deposit Washington Rall- way & Electric Co.			08 98					Repairing within 2- foot space.	813 818
200	Front 2310 Street N.W. Thirteenth Street NE., between Rhode Island Avenue and Franklin Street.	Deposit B. N. Meres. Deposit D. C. Whitaker.				T	1	7	114		<b>8</b> .2
888	Rear, 1744 R Street NW. Adjacent to tracks, Thirty-cirth and M Streets NW.	Clarke Waggaman. Washington Railway &	6.00	8.00				R	ន	Adjusting curb line	85.83 88.83
188	New post-office building, First Street and Massa- chusetts Avenue.				354.37	231.23	:	2			565.00
6035	North side Massachusetts Avenue, between Macomb and Nebrasan Streets. First Street NE., between Massachusetts Avenue and G Street.	Washington Railway & Electric Co. John Gill & Son.	200.00	200.00	230.00		1,480			1,480 Grading and widen- ing roadway.	3,255.71
	Total		333.50	14.50	650.17 316.23	316.23	1,502	8	H		6, 391. 31

TABLE O .- Number of square yards and cost charged for repairs to cuts in streets, avenues, and alleys during the fiscal year ended June 30, 1914.

Itam No. I shows the number of square yards and cost charged for repairs to cuts made by various plumbers and corporations at flat rates.

Item No. 2 shows the number of square yards repaired and the cost thereof on "whole-cost" work to which 5 per cent is added for tools, clerk hire, etc., for the maintenance of the miscellaneous trust fund deposits (District of Columbia), operating account, streets, which fund is used to pay all accounts for labor, material, tools, etc., used in this cass of work.

Item No. 3 shows the number of square yards and cost charged for work done on account of the sewer

department.

Item No. 4 shows the number of square yards and cost charged for work done on account of the water

department.

Item No. 3 shows the number of square yards and cost charged for work done on account of the water department.

Item No. 5 shows the number of square yards repaired and cost charged for work done on account of other appropriations of the District of Columbia; also the cost of work against retents and appropriations of the General Government.

	Square yards.	Cost (amount charged).
Item No. 1.—Plumbers and corporations' cuts at flat rate: Sheet asphalt Granite 'Llock Asphalt block Viirified block and brick Conble and rubble Macadam Granolithic walks Brick striewalk Bricks furnished Asphalt blocks furnished. Viirified blocks furnished Cuts repaired at actual cost, plus 5 per cent.	913.90 1,987.45 997.50 831.22 2,507.28 9,675.00 115,840.00 5,900.00 3,694.00	\$6,177.00 1,370.85 2,981.17 2,493.76 498.73 2,507.28 15,963.75 792.00 59.00 277.08 258.89 400.12
Item No. 2.—Various corporations and individual depositors	42, 133, 22	33,779.61 67,405.41 8,880.03 20,715.45 9,788.46 140,568.96

<sup>1</sup> Feet, and not included in total number of square yards. 2 Included in number of macadam cuts. Total number of charges made for repairing cuts of all kinds, 10,100.

TABLE P.—Grading streets, alleys, and roads, 1914.

Intersection Thirty-sixth Street and Norton Place	
Intersection Thirty-sixth Street and Norton Place   Shepherd Street NF., west of Twelfth Street, and Twelfth Street south of Shepherd Street NF., west of Twelfth Street and Georgia Avenue   2,245	Cost.
Shepherd	\$199. 25
Sixth Street NW., between Newton and Otis Streets   2,023	187. 87 981. 63
Park Place NW   between Newton and Otis Streets   640	1,073.87
Adams am Road between Onderto Road and Summit Place   2,530     1917   East Me Fourth Street NE., between M Street and Florida Avenue	256, 00 623, 37 95, 94 130, 25 366, 75 80, 00 298, 53 289, 26
1917   East : Me Fourth Street NE., between M Street and Florida Avenue	499, 62
1931   North and south alley, square 4221	57. 38 37. 75 436. 50 87. 25 215. 75
1939   Nineteenth Street NW., between Biltmore and Belmont Streets	110.06 386.50 48.50
1942         Warder Street NW., 200 feet north of Newton Street.         800           1943         Kenyon Street NW., between Warder Street and Park Place.         333           1948         Allay, aquare 3834.         78	100.75 176.06 100.44 65.25

TABLE P.—Grading streets, alleys, and roads, 1914—Continued.

Job No.	Location.	Grading.	Cost.
1922 1923	A Street NF., between Sixteenth and Seventeenth Streets	1 320	<b>89</b> 78, 24 51, 71
1927 1934 1949	Girard Street N.F., I etween Twelith and Thirteenth Streets.  Tracy Place west of Twenty-third Street.  West Virginia Avenue from Otis to Fenn Streets.	706	389, 6, 298, 53 424, 00
1950 1951 1952	T Street NE., between First and Second Streets	132 2,250	66, 00 653, 96 59, 80
1928 1954	Foots Street east of Anacostia Road. C Street SE., hetween Sixteenth and Sevanteenth Streets	56 30	28. 2: 15. 2:
1957 1958 1940	Thirty-fifth Place NW., between T and U Streets.  West alley, square 1045.  Willow Street NW., between Carroll and Aspan Streets.	1 572	161, 15 25, 56 478, 3
1964 1925 1944	Fighth Street NW., north of Allison Street. Congress Heights Q and Twenty-second Streets SE.	250 874	99. 50 438. 71 82. 1
1946 1966	W indom Place, east of Wisconsin Avenue.  W Street, between Shannon Place and Railroad Avenue.	49 187	23. 5 93. 7
1962 1963 1960	Rennedy Street NW., near Fourteenth Street  Park Place, east of Twenty-fifth Street	140 196	34. 5 98. 0 140. 1
1981 1967 1968	Alley, square 2401 Lawrence Street NE., between Fourteenth and Fliteenth Streets West side Forty-first Street, between Davenport and Ellicott Streets	130	391. 49 65. 0
	Alley, square north of square 1859.		616. 9 12, 606. 8
1903	Various streets, cleaning mud from skiewaiks		1,376.1

### REPORT OF THE SUPERINTENDENT OF STREET CLEANING.

Washington, D. C., September 15, 1914.

SIB: I have the honor to submit the following report of the street-cleaning division of the engineer department of the District of Columbia for the fiscal year ending June 30, 1914.

#### CONTRACT WORK.

Throughout the year the following work has been done by contract under the direction of this division:

Garbage.—The collection and disposal of garbage dally, including Sundays, from such hotels, apartment houses, markets, and other like places within the city of Washington and such of its suburban sections as may be designated, from time to time, by the Commissioners of the District of Columbia.

The collection and disposal of garbage daily, excluding Sundays, from May 16 to October 15, both days inclusive, and three times a week from October 16 to May 15, both days inclusive, from all places not embraced in the preceding paragraph within the existing fire limits of the District of Columbia and certain of the more thickly populated sections on the outside of and adjacent to the fire limits.

The collection and disposal of garbage three times a week from May 16 to October 15, both days inclusive, and semiweekly from October 16 to May 15, both days inclusive, from all places not included in the preceding paragraphs in the city of Washington and its suburbs, as such suburbs may, from time to time, be designated by the Commissioners of the District of Columbia.

The collection of garbage is made in wagons carrying a covered iron box which is lifted from the wagons and loaded on cars at the transfer station. This box, containing the garbage, is then shipped by rail to the disposal plant owned by the contractor, located about 32 miles from Washington, and the garbage is there disposed of by the reduction process.

Ashes.—The collection and disposal of ashes within the existing fire limits of the District of Columbia and certain of the more thickly populated sections outside of and adjacent to the fire limits, weekly from April 16 to October 31, inclusive, and semiweekly from November 1 to April 15, inclusive, from private residences, boarding houses, lodging houses of not to exceed 25 rooms, and

apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia.

The collection and disposal of ashes from all private residences and such other like places corresponding to those included in the preceding paragraph from the remainder of the city of Washington and its suburban sections, as said suburban sections may from time to time be designated by the Commissioners of the District of Columbia, weekly, throughout the entire year.

The collections are made in wagons with canvas covers and disposed of by

filling low ground on the outskirts of the city.

Refuse.—The collection and disposal of miscellaneous refuse, in the city of Washington and its more densely populated suburbs, as such suburbs may from time to time be designated by the Commissioners of the District of Columbia. once a week from all private residences, boarding houses, and lodging houses with not to exceed 25 rooms, and apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia, and from such public waste boxes as may be established by the street-cleaning division in the machine-swept section of the city and District.

The collections are made in wagons suitable for this purpose and what is not salable is disposed of at an incinerating plant owned by the contractor.

Dead animals.—The collection and disposal of dead animals daily, including Sundays, throughout the year, from every part of the District of Columbia upon notification to the contractor of the existence of said dead animals.

The collections are made in vehicles suitable for the purpose, and the disposal is accomplished by the reduction process, at a plant owned by the con-

tractor, located about 4 miles from the city.

Night soil .- The collection and disposal of night soil from all privies, and from all streets, avenues, alleys, roads, and open lots in the District of Columbia upon receipt of notice from the superintendent of street cleaning.

The collections are made in air-tight receptacles designed for that purpose and transported therein on barges about 8 miles from the city and there

used as fertilizer on a farm.

Ashes from public buildings.—The collection and disposal of ashes and refuse from buildings under the control of the Commissioners of the District of Columbia as such may accumulate.

This work is done by contract under the direction of this division, but paid for from the appropriation for the maintenance of each building in proportion to the quantity removed.

#### MUNICIPAL WORK.

Throughout the year the following work was done under the immediate direc-

tion of this division:

Machine cleaning.—The cleaning of all paved streets outside the hand-patrol area every day, every other day, or every third day, depending on the location and traffic carried. At the beginning of the year the territory under attention amounted to about 2.225.000 square yards. On April 16, 1914, continuing the general policy of the division, certain paved streets were taken from the machine-cleaning territory and added to the hand patrol, thereby decreasing the area cleaned to about 1,603,000 square yards. Prior to April 16, 1914, the force employed consisted of two gangs of 1 sprinkler, 3 machines, 4 carts, and from 4 to 6 broomers each, and one gang of 2 sprinklers, 6 machines, 7 carts, and 8 broomers. After this date, one of the 3-machine gangs was abolished.

Alley cleaning.—The cleaning of all paved alleys in the District of Columbia about once every week. Additional alleys have been paved and added to those previously cleaned, bringing the total area cleaned from 1,060,000 square yards on July 1, 1913, to 1,079,959 square yards on June 30, 1914. This work was done by two gangs, each consisting of a 1-horse sprinkler, a 1-horse machine broom, 3 to 4 carts, and 6 broomers, and one gang of a 1-horse sprinkler, 8 carts, and 4 broomers, this gang being used in alleys too narrow for machine brooms.

Suburban cleaning.—The cleaning of all macadam, gravel, and unpaved streets not taken care of by the county, and unpaved alleys in the more thickly populated suburban sections, about once every 10 days. Additional territory was transferred during the year from that taken care of by the division of county roads, increasing the total from 1.481.525 square yards to 1,514.180 square yards, the alleys under attention totaling an additional 55,200 square yards.

gangs were used for this work, each composed of 4 carts and from 8 to 10 broomers.

Hand patrol.—The daily cleaning of all streets in the central portions of the city, amounting to about 3,524,700 square yards. Due to additional streets being paved and changes made in the machine work, this is an increase of 711,700 square yards over the territory under attention July 1, 1913. Approximately 280 men are employed daily, divided into six gangs, and the dirt gathered by sixteen 2-horse wagons, an increase in the working force of 42 men and three 2-horse wagons over that employed at the beginning of the year.

Flushing.—The flushing of cobblestone, granite, asphalt block, and poorly paved streets in the hand-patrol section of the city, amounting to about 374,050 square yards, an increase of 64,050 square yards over the territory under attention July 1. 1913. A battery of three pneumatic flushing machines has covered this territory about once in four or five days, the hand patrol removing the dirt

from the gutters.

**Squeegecing.**—The squeegeeing of nearly all the smoothly paved streets in the hand-patrol area two to three times each week, amounting in street area to about 1,855,000 square yards. This is an increase of 114,000 square yards over

the territory under attention a year ago.

From the middle of October to the middle of April two gangs, each composed of 1 sprinkler and 3 squeegee machines, were operated whenever the weather permitted, each street in the section being washed about every three days. During the remainder of the year one gang of 1 sprinkler and 4 machines worked double shift in addition to a day gang of 1 sprinkler and 3 machines, reducing the intervals between washings to about two days. As a result of this frequent washing there has been practically no complaint of dust, the white wings removing all coarser particles of dirt and the intervals between washings being too small to permit any accumulation of dust or the scum which makes the pavement so slippery when slightly wet.

Dust prevention.—The coating of practically all unpaved suburban streets with emulsion road oil, the entire area being covered about ten times. The first part of the season two spreader wagons and three supply wagons were used, but as the oil accumulated on the streets less oiling was necessary and the force was cut down to one spreader and two supply wagons, the intervals between

oiling being lengthened.

#### GENERAL.

The division of street cleaning serves a population of about 353,297 and covers

an area of approximately 70 square miles.

The acts of Congress making appropriations for the expenditures of the District of Columbia for the fiscal year ending June 30, 1914, allowed \$260,000 for dust prevention, cleaning streets and alleys, and snow removal. This was a reduction by \$5,000 from the amount received during the previous year and extensions of service were only made in the case of newly paved streets or alleys. It is very gratifying to note that in spite of this reduction the records of area cleaned show a considerable increase over the figures for the previous year.

The severe storm of July 30 caused a halt in the normal functions of the street cleaning division and the entire force was occupied for several days in clearing the streets of the débris from the storm, the men being equipped with axes, saws, etc., and the teams engaged in hauling tin roofs, limbs, and branches

of trees, etc.

The continued marked superiority of the hand patrol work over machine-broom cleaning, led to a still further reduction in the area cleaned by the latter method. The change involved a complete reorganization of the white-wing sections and added 42 men and 3 wagons to the hand patrol force, this territory previously

having been taken care of in two days by a 3-machine broom gang.

The two-sprinkler, six-machine broom gang with two foremen, one equipped with a motor cycle, continues to show an advantage over the one-sprinkler, three-machine gang with one foreman equipped with a horse and buggy. The motor-cycle foreman of the two-six gang spends his entire time with the broomers and carts and the cost of the force required to broom up and carry nway the dirt swept to the gutter has been reduced 20 per cent.



The use of motor cycles shows to such a great advantage that the estimates for the fiscal year 1916 requests authority to purchase four additional motor cycles or light motor vehicles. The territory assigned to the white-wing foreman using motor cycles is so large that it would be impossible for them to cover every street in their territory every day with either bicycle or horse and buggy.

The policy of the division as regards snow and ice has undergone a considerable change during the past year. Previously, no snow was hauled except from street-railway intersections, largely at the expense of the railway companies, and the energies of the division were directed toward cleaning off sidewalks and crosswalks, opening up gutters, and scattering the snow so as to facilitate its melting and running off. During the past winter, however, the division was engaged actively in the hauling of snow; teams and men being hired and the work carried on day and night. It is estimated that during the winter approximately 160,000 cubic yards of snow were removed from the streets in the business section of the city, in addition to the opening of crosswalks, sidewalks, and gutters in the surrounding territory.

The cost-keeping system has been still further simplified and a description has been made of the entire work of the same. A chart has also been developed showing all the records received, their origin, and the intermediate steps to the final-cost report. This chart also shows the clerk responsible for the proper keeping of each record and, when used in connection with the description already referred to, assures the proper working of the cost system even though extensive changes in the operating force should occur. The continued efficiency of the cost-keeping system and particularly its relation to the foreman on the street is shown in their interest in the costs of the work of their gangs and also in the reduction in unit cost for the various classes of cleaning.

In the tables following the yardage of the hand patrol area cleaned shows a considerable increase over the figures for the previous year, partly due to the change from machine-broom sweeping to hand patrol, machine cleaning showing a reduction of about one-quarter of the total increase in the hand patrol work. In spite of this large increase, the total expenditure for hand patrol work is about \$1,000 less than during the previous year.

In the case of suburban cleaning, a considerable reduction is shown both in yardage cleaned and in total cost. This reduction is no doubt possible because of the frequent oiling which the suburban streets received. The tendency of the oil is to compact the surface and reduce the amount of material to be removed by the cleaners. During the past year the dirt removed by the suburban gang has been reduced almost 2,000 cubic yards as compared with the previous year.

The increased yardage for flushing, at practically the same total cost, is due to an improved method of working. A battery of three machines is now being used where formerly but two were operated in conjunction. It is found that in most streets with the three machines, the wave of water from the first machine is taken up by the second and carried to the curb by the third, a cleaner street being obtained by this method and less water used than is the case where the material comes to rest some distance from the curb and must be again set in motion. Washing with squeegee machines shows practically the same area at small increased unit cost, partly due to the cost of forage, but also to the fact that there were fewer days during the past year when squeegee machines could be operated as compared with the year previous.

The great difficulty with washing machines, both squeegees and flushers, is that during a considerable portion of the year they are useless, the pavements being so cold that any water deposited immediately freezes. This means that during such weather there are a large number of horses standing idle, but still costing practically as much for forage. maintenance, etc., as if working their regular quota. In the estimates for the coming year, therefore, an item has been included for the purchase and maintenance of two motor-propelled squeegees and one motor-propelled combination sprinkler and flusher. It is believed that by the use of these machines not only will it be possible to wash the streets more frequently but a reduced unit cost should be possible, particularly since during the cold season there will be no cost for maintenance as compared with the present live stock.

The inspectors of the collection and disposal of city wastes made investigations during the year of complaints and requests in number, as follows: Garbage, 929; ashes, 2,333; and refuse, 2.981. Of the total garbage complaints but 40, or 6 per cent, were found on investigation to be the fault of the contractor; 186, or 27

per cent, were found to be the result of violations on the part of the house-hoiders of the police regulations regarding the disposal of refuse while in 461 cases, or 67 per cent, the fault could not be definitely placed. In the case of ashes, 234, or 14 per cent, were found to be the fault of the contractor; 608, or 87 per cent, chargeable to the failure on the part of the householder to observe the regulations, principally regarding accessibility, while 827, or 49 per cent, are classed as doubtful. In the refuse service, 608 complaints, or 24 per cent, werfound to be the fault of the contractor; 833, or 33 per cent, to be the fault of the householder; while 1,056, or 43 per cent, were classed as doubtful.

For the inspection of the disposal of city wastes, including garbage, ashes, refuse, dead animals, and night soil, there are only 5 inspectors. It is manifestly impossible for them to supervise the collection of every class of city waste at every house. Inspection can only be made in a general way—information obtained as to whether each wagon is on its regular route on the schedule day, special attention being given to those which are likely to be behind, and complaints investigated. The investigation being made after the cause of the complaint, it is usually difficult to ascertain whether the fault was the servant's or householder's, in not making the proper separation and the waste accessible

to collectors, or that of the collector.

The contracts for the collection and disposal of night soil and for the collection and disposal of ashes and refuse from public buildings under the control of the commissioners expired June 30, 1913. New contracts were entered into to continue this work, that for night soil removal being for a five-year period. at \$15,000 per annum, while that for ashes and refuse from public buildings was for a one-year period, at 41 cents per cubic yard. This one-year period expired June 30, 1914, and the contract was extended for an additional year at the same price per cubic yard.

The contracts for the collection and disposal of garbage, ashes, refuse, and dead animals are all five-year contracts and expire June 30, 1915. With a view to obtaining less objectionable, more efficient, and more economical services than are at present rendered by the contractors, the commissioners have for three years past recommended to Congress that an appropriation be made for the purpose of investigating and reporting on the collection and disposal of city waste, including the preparation of plans and specifications for the

construction of disposal plants.

It is estimated that the contractors for the disposal of city waste have invested in collecting equipment and disposal plants several hundred thousand dollars which they must have figured on recovering from the amounts received from the District of Columbia for the services rendered during the five-year term of their contracts, as these investments will be practically valueless on their expiration if they are not successful in obtaining the same contracts for the next term of five years. In other words, the District of Columbia is probably paying to the contractors, in addition to the cost of the work and the contractor's profit, the cost of complete disposal plants and collection equipment every five years, whereas the disposal plants, if owned by the District, would probably have a life of 40 or 50 years. It is believed that the District of Columbia should at least own the disposal plants, which could be operated by the district, and the collection of city wastes could be let to contractors; or the whole service could be let by contract on the basis of the contractors leasing the disposal plants from the District of Columbia.

Under the present system the collections of garbage, ashes, and dead animals are practically perfect. The collection of miscellaneous refuse was in a similar state until early this spring, when the contractor made a change in his collection routes, which resulted in very irregular service and numerous complaints. At the present time, however, this system is working very satisfac-

torily, and a very good service is being given

Your attention is invited to the detailed information and statements of appropriations and expenditures submitted herewith.

Very respectfully,

J. W. PAXTON, Superintendent of Street Cleaning.

Capt. MARK BROOKE,

Corps of Engineers, United States Army,

Assistant to the Engineer Commissioner, District of Columbia.



FINANCIAL STATEMENT, STREET CLEANING APPROPRIATIONS, FISCAL YEAR 1914.

"Streets, District of Columbia, 1914; cleaning, etc.":			
Pay rolls—			
Hand cleaning	\$101, 222.16		
Machine cleaning	21, 344. 05		
Alley cleaning	13, 151. 49		
Suburban-street cleaning	10, 124. 18		
Squeegee cleaning	4, 792. 65		
Flushing	1, 210. 40		
Sprinkling	<b>583. 82</b>		
Oiling	683. 51		
Dump men	2, 945. 54		
Office work	1, 173. 98		
Stables	13, 702, 56		
Repair shop Snow and ice	15, 025. 54 8, 644. 17		
Operating expenses—	0, 044. 11		
Office	94. 42		
Rent of storage rooms	490. 75		
Livery, inspectors' horses	1, 082. 00		
Oil for roads			
Hire of extra teams—	22,002.00		
Oiling	224. 00		
Snow and ice			
Squeegees	16.00		
Electric light and power	<b>6</b> 98. <b>28</b>		
Repair material and supplies	13, 759, 10		
Forage	<b>82</b> , 730. 82		
Stable supplies			
Equipment	<b>1,</b> 769. 05		
Unexpended balance	94. 80		
•			
Total		\$261, 086, 69	
Total Repaid from other appropriations—		<b>\$261, 086. 69</b>	
Repaid from other appropriations—		<b>\$261, 096. 69</b>	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia,		<b>\$261, 086. 69</b>	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"	<b>48</b> 0. 00	<b>\$261, 096. 69</b>	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street" "Improvements and repairs, Dis-	<b>48</b> 0. 00	<b>\$261, 096. 69</b>	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street" "Improvements and repairs, District of Columbia, 1914, re-	480. 00	\$261, 086. <b>69</b>	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"———  "Improvements and repairs, District of Columbia, 1914, repairs to streets"———————————————————————————————————	480. 00 97. 12	\$261, 086. <b>69</b>	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street" "Improvements and repairs, District of Columbia, 1914, repairs to streets" From Washington Railway &	480. 00 97. 12	\$261, 086. 69	
Repaid from other appropriations— "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"——— "Improvements and repairs, District of Columbia, 1914, repairs to streets"———— From Washington Railway & Electrict Co.—	480. 00 97. 12	\$261, 096. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"	480. 00 97. 12 189. 52	\$261, 096. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.—  Snow and ice work  Oiling tracks	490. 00 97. 12 189. 52 198. 39	\$261, 096. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.—  Snow and ice work  Oiling tracks  From Capital Traction Co., snow	490. 00 97. 12 189. 52 198. 39	\$261, 096. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.—  Snow and ice work  Oiling tracks	490. 00 97. 12 189. 52 198. 39	\$261, 086. 69	•
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"——  "Improvements and repairs, District of Columbia, 1914, repairs to streets"————  From Washington Railway & Electrict Co.—  Snow and ice work———  Oiling tracks————  From Capital Traction Co., snow and ice work————	480. 00 97. 12 189. 52 198. 39 121. 66		
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.—  Snow and ice work  Oiling tracks  From Capital Traction Co., snow	480. 00 97. 12 189. 52 198. 39 121. 66	\$261, 086. 69 1, 086. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"——  "Improvements and repairs, District of Columbia, 1914, repairs to streets"———  From Washington Railway & Electrict Co.—  Snow and ice work———  Oiling tracks———  From Capital Traction Co., snow and ice work———  Total amount repaid————	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69	
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69	\$260, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, dis	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69	\$260, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street ""  "Improvements and repairs, District of Columbia, 1914, repairs to streets ""  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, dispense":	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69	\$280, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street ""  "Improvements and repairs, District of Columbia, 1914, repairs to streets "	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69	\$280, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"——  "Improvements and repairs, District of Columbia, 1914, repairs to streets"——  From Washington Railway & Electrict Co.—  Snow and ice work———  Oiling tracks———  From Capital Traction Co., snow and ice work———  Total amount repaid———  Amount of appropriation——  "Streets, District of Columbia, 1914, disgresse":  Garbage————————————————————————————————————	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69 	\$260, 000. <b>0</b> 0
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, disgrefuse": Garbage Ashes	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69 68, 384. 00 73, 007. 00 16, 583. 50	\$260, 000. <b>0</b> 0
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, disgrefuse": Garbuge Ashes Refuse Night soil	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69  68, 384. 00 73, 007. 00 16, 583. 50 14, 962. 00	\$280, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, disgrefuse": Garbage Ashes	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69 68, 384. 00 73, 007. 00 16, 583. 50	\$260, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"——  "Improvements and repairs, District of Columbia, 1914, repairs to streets"——  From Washington Railway & Electrict Co.—  Snow and ice work———  Oiling tracks—  From Capital Traction Co., snow and ice work——  Total amount repaid———  "Streets, District of Columbia, 1914, dispensed in the street of Columbia, 1914, dispensed in the st	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69 68, 384. 00 73, 007. 00 16, 583. 50 14, 962. 00 2, 853. 00 1, 079. 03 55. 44	\$260, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, dispense ": Garbage Ashes Refuse Night soil Livery, inspectors' horses Office expenses Inspection	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69  68, 384. 00 73, 007. 00 16, 583. 50 14, 962. 00 2, 863. 00 1, 079. 03 55. 44 2, 627. 00	\$280, 000. 00
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69 68, 384. 00 73, 007. 00 16, 583. 50 14, 962. 00 2, 853. 00 1, 079. 03 55. 44	<b>\$260, 000. 00</b>
Repaid from other appropriations—  "Contingent and miscellaneous expenses, District of Columbia, 1914, sweeping B Street"  "Improvements and repairs, District of Columbia, 1914, repairs to streets"  From Washington Railway & Electrict Co.— Snow and ice work Oiling tracks  From Capital Traction Co., snow and ice work  Total amount repaid  Amount of appropriation  "Streets, District of Columbia, 1914, dispense ": Garbage Ashes Refuse Night soil Livery, inspectors' horses Office expenses Inspection	480. 00 97. 12 189. 52 198. 39 121. 66	1, 086. 69  68, 384. 00 73, 007. 00 16, 583. 50 14, 962. 00 2, 863. 00 1, 079. 03 55. 44 2, 627. 00	\$260, 000. 00

Amount of appropriation\_\_\_\_\_

OPER	ATIONS OF THE ENGINEER	DEPART	MENT,	D. <b>C</b> .	37
	appropriation by act of Congres	s, Feb.	\$1, 852.		<b>1, 852</b> . <b>6</b> 0
Columbia, 191 allotment ":	d miscellaneous expenses, Dist 4, contingent expense, street cl	eaning	020	·	
New equipm Unexpended	nse nent   balance		48.	83 47	
"Salaries, office Amount exp	of appropriation s, District of Columbia, 1914": pended balance		41, 129.	98	700. 00
Amount a	ppropriated			4	1, 180. 00
Total am	ount of appropriations			48	3, 177: 60
	Miscellaneous data, street-cle	eaning u	or <b>k</b> .		
			Material	emoved.	
	Class of work.	Wagon- loads.	Cart- loads.	Cubic yards.	Tons.
Alleys			13,006 5,625 8,454	26, 012 8, 438 8, 454 50, 424	5, 625 8, 454
	Average force per working da	y of 8 hour	8.	Day	s worked.

						1				
		Ave	rage for	e per wo	rking da	y of 8 ho	urs.		Days	worked.
Class of work.	Carts.	Wag- ons.	Sprin- klers.	Ma- chines.	Squee- gees.	Flush- ers.	Hired teams.	Men.	Calen- dar.	Actual.
Machines	15.8 10.0 8.1		3.8 2.8	11. 7 1. 9				49. 4 31. 3 26. 1	260 270 257	264.0 249.7
Hand patrol		17.1	2.7		9.0	8.1	• • • • • • • • • • • • • • • • • • • •	249.9 3.1 12.4 2.1	296 239 248 208	276.9 228.2 235.1 188.0
Olling. Snow and ice	••••••	••••••	2.1 3.7			••••••	0.057 13.3	4.3 265.9	108 20	98.7 94.5

Table showing comparative data in connection with street-cleaning work from 1910 to 1914.

# SQUARE YARDS CLEANED.

	1910	1911	1912	1913	1914
Hand patrol Machine sweeping Alley cleaning Suburban streets Squeegees Finshing	543, 088, 777 435, 397, 855 50, 532, 192 39, 683, 516	536, 897, 423 367, 242, 484 38, 396, 138 40, 194, 274 50, 012, 859 5, 589, 367	646, 377, 000 337, 990, 000 54, 664, 000 27, 825, 000 88, 328, 000 8, 747, 000	766, 918, 000 286, 067, 000 61, 354, 000 43, 565, 000 144, 629, 000 20, 703, 000	835, 588, 000 267, 557, 000 58, 671, 000 34, 296, 000 344, 878, 000 22, 424, 000
	DIRECT	TOTAL CO	ST.		
Hand patrol Machine sweeping Alley cleaning Suburban streets Squeegee; Finshing	\$96, 610. 13 99, 053. 02 20, 212. 85 17, 437. 01	\$94, 134, 48 83, 547, 67 15, 358, 44 17, 008, 26 5, 814, 57 1, 765, 12	\$98, 132, 85 54, 623, 72 17, 752, 45 14, 559, 76 9, 407, 58 2, 385, 84	\$117, 980. 15 46, 088. 96 19, 908. 48 18, 552. 80 17, 026. 64 5, 148. 78	\$116, 921. 65 41, 756. 07 19, 795. 31 13, 591. 96 17, 478. 55 5, 210. 96

Table showing comparative data in connection with street-cleaning work from 1910 to 1914-Continued.

### COST PER 1000 SQUARE YARDS.

	1910	1911	1912	1913	1914
Hand patrol	. 2275 . 40	\$0.1753 .2275 .40 .1162 .3157	\$0.152 .162 .324 .096 .272	\$0. 154 . 161 . 325 . 117 . 248	\$0.140 .156 .337 .121 .232

NOTES.—Changes and improvements in methods of measuring and distribution prevent exact comparison between the figures for different years.

Previous to 1912 the work of machine sweeping, alley cleaning, and suburban street cleaning was done by

contract.

## Table showing comparative data in connection with disposal of all city wastes from 1910 to 1914.

### NUMBER OF UNITS COLLECTED.

	01 01111				
	1910	1911	1912	1913	1914
Garbage	44, 286 162, 272 72, 060 26, 280 18, 875	48, 214 171, 361 108, 783 23, 834 16, 720	47, 445 203, 568 115, 378 21, 264 17, 492	50, 778 200, 430 138, 382 19, 835 21, 287	48, 927 255, 358 140, 681 15, 514 19, 146
T	OTAL NET	COST	<u> </u>	<u> </u>	
Garbage	15, 654, 00	\$68, 400. 00 73, 111. 00 14, 934. 00 16, 272. 00 2, 855. 00	\$68, 394. 00 73, 053. 00 16, 560. 00 16, 600. 00 2, 855. 00	\$68, 388. 00 73, 129. 00 16, 593. 00 16, 600. 00 2, 855. 00	\$68, 384, 00 73, 007, 00 16, 583, 50 14, 962, 00 2, 853, 00
C	OST PER	UNIT.	<u> </u>	<u>'</u>	
Garbage ton. Ashes cubic yard. Miscellaneous refuse do. Night soil barrel. Dead animals number.	\$1.77 .40 .21 .60 .126	\$1.41 .42 .14 .68 .170	\$1.44 .36 .14 .78 .163	\$1.34 .36 .12 .83 .134	\$1.39 .29 .12 .96 .149
FI	NES DED	UCTED.			
Garbage	192.00 346.00 516.00	\$39.00 2,066.00 328.00	\$16.00 97.00 440.00	\$12.00 21.00 407.00	\$16.00 143.00 416.50 38.00 2.00

Specifications for the collection and disposal of ashes, garbage, dead animals, and miscellaneous refuse in the District of Columbia.

## [Work done under supervision of street-cleaning division.]

1. Definitions.—The term "garbage" wherever it occurs in these specifications means all refuse of animal and vegetable matter which has been used as food for man (except oyster and clam shells from business places) and all refuse animal and vegetable matter which was intended to be so used, and includes food condemned by the health department. The term "dead animals" means all dead animals, or parts thereof, not intended to be used as food for man. The term "miscellaneous refuse" means all refuse from places of residence and business, except garbage, dead animals, night soil, and ashes. In

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addition to the ordinary household rubbish it will be held to include discarded Christmas trees and greens and small branches from shrubs or vines, but will not include any material whatever in the nature of earth or sand, wall paper, lumber, brick, stone, plaster, or other substance that may accumulate as the result of building operations or repairs to yards and buildings. Manure is not included under any of the above classes of material. The term "ashes" will be held to mean ashes from coal and other fuel, and will include such mineral substances as fallen plastering, etc., as may accumulate in connection with the ordinary conduct of dwellings and places of business, but not such as may accumulate as the result of building operations.

2. Hours of collection.—Garbage, miscellaneous refuse, and ashes must be collected between 7 o'clock a. m. and 6 o'clock p. m.; dead animals must be collected between 6 o'clock a. m. and 9 o'clock p. m. Special collections at other hours may be authorized by the commissioners, and may be required by them whenever in their judgment they are necessary.

3. Receptacles.—Garbage intended for collection will be deposited by householders in water-tight covered vessels which can easily be handled by one man; ashes and miscellaneous refuse intended for collection will be deposited by householders in receptacles suitable for that purpose and which can easily be handled by one man. All receptacles aforesaid will be placed at points accessible to collectors. In the case of hotels, apartment houses, markets, etc., larger receptacels will be allowed under such restrictions as the commissioners may determine. In the event of dispute between citizen and contractor as to the point at which the garbage, ashes, or miscellaneous refuse shall be placed for collection the case shall be referred to the superintendent of street cleaning,

whose decision shall be binding upon the contractor.

4. Defining accessibility—Provisions for failure to remove.—The term "accessible to collectors" in the foregoing paragraph (No. 3) of these specifications shall be held to mean the placing of the receptacles by the householder inside of and near to the side or rear entrance of the premises (if collections are made from the side or rear) and in the areaway or other convenient place in front of said premises (if collections are made from the front), and the unfastening of the gate or other approach to the premises upon due warning by the collector by the free use of his horn, gong, or other signal. No receptacle will be allowed on the sidewalk, street, or public alley, and if the house or building has no yard or areaway large enough to hold the receptacles containing what accumulation is made between the regular collection days without unduly blocking the free passage through such areaway, collection must be made from within said house or building, provided entrance be afforded by a previously unlocked gate, door, or window. Nothing in these specifications shall be held to compel the contractor on his regular collection day to stop at any premises where the gate or other entrance thereto is found locked at the time of his arrival, nor to wait for said entrance to be opened, nor to notify the householders of his presence by any other means than the free use of his horn, gong, or other signal: *Provided, however*, That where, through failure by any cause of his own, the contractor does not remove ashes, garbage, or miscellaneous refuse on his regular collection day, such material must be collected the next succeeding day, if so desired, by the householder, from each and all of the premises neglected, whether the said material is made accessible or not in the meaning previously defined in this paragraph.

The fact that the contractor so removes the neglected material the day following the regular time of collection shall not be held to release him from liability for liquidated damages incurred by such neglect, except where the streets on the regular collection day are, in the opinion of the superintendent of street

cleaning, in such condition as to excuse such neglect.

5. Removal from street, etc.—Each contractor for the removal of any class of material named in paragraph 1 of these specifications, which is ordinarily kept in receptacles on the premises of the householder, must under such exceptional circumstances as in the opinion of the superintendent of street cleaning render it necessary, and upon his order, remove such material from any public street, avenue, alley, or road, or from any vacant lot, park, or uninclosed land.

6. Mixed material.—The commissioners will enforce the separation by householders of each class of material named in paragraph 1 of these specifications, so far as may be practicable. But whenever, through neglect on the part of a householder or otherwise, two or more classes of such materials have been deposited in the same receptacle or place, the collection contractor affected, when such mixed material is refused by his collector, must notify the householder on whose premises the mixed material is found and request said house holder to have such material separated in accordance with the police regulations of the District of Columbia; in the event of the householder refusing so to do, the contractor must forthwith, in writing, notify the superintendent of street cleaning, giving the name and address of the householder. in his opinion it becomes necessary said superintendent shall determine by which contractor or contractors, if any, the material in question shall be collected and disposed of, and such contractor or contractors must collect and dispose of such material.

7. Unlawful receptacles—Frozen material.—Lawful receptacles for ashes, garbage, and miscellaneous refuse will be found defined as to size and nature in the police regulations of the District of Columbia. No person shall deposit ashes for collection in any receptacle having a capacity of less than 5 nor more than 24 gallons. If material is found in unlawful receptacles the collector may refuse to collect the same, unless the use of such unlawful receptacles has been necessitated by the collection contractor's neglect (see par. 8) or authorized by the superintendent of street cleaning, but if such material is refused, the householder must be notified and the reason for such refusal must be explained to him by the contractor. If, upon the next regular collection day, lawful receptacles have not been provided, the contractor for collection must notify the superintendent of street cleaning forthwith, in writing, giving the name and address of the householder at fault.

The said police regulations instruct householders to keep garbage free from dishwater and as dry as practicable, to have both ash and garbage receptacles covered when awaiting collections so as to prevent animals from getting at their contents, to keep out rain, and to obviate freezing as far as possible. garbage or ashes are found in frozen condition, the collector for such class of material shall not refuse to collect same without notification to the house-holder, and if said householder is willing that the collector shall attempt to loosen such frozen material and releases the collector from any unavoidable damage done to the receptacle in such attempt, said collector must remove such frozen material. Where the householder is not willing to release the collector from unavoidable damage in loosening the contents of the receptacle, and the material is refused, the contractor for the collection of such material must notify the superintendent of street cleaning of such refusal forthwith, in writing, giving the name and address of the householder on whose premises the frozen material is found; provided, however, that nothing in this or the preceding paragraph shall be held to release the contractor or contractors for collection from liability for liquidated damages incurred by neglect where material has been refused from any cause whatever (except inaccessibility), unless such refusal is reported in writing forthwith to the superintendent of street cleaning, as herein provided for.

8. Accumulation.—Householders are required to provide sufficient receptacles for each class of material to contain all of such material accumulating on the premises between the regular collection days. The contractor shall, on demand of the householder or the superintendent of street cleaning, collect all of such material, whether the same be in lawful receptacles or not, whenever an accumulation results through his neglect, but he shall not be required to collect such material as may not be in lawful receptacles and due to the neglect of the house-

9. Receptacles, and damage to same.—The contractor for the collection of garbage must provide each of his collectors with a water-tight bucket, said bucket to be used wherever possible in the transfer of garbage from the householder's receptacles to the contractor's collection vehicle.

All receptacles, whether for ashes, garbage, or miscellaneous refuse, shall be replaced in the position where found by the collector, shall be handled carefully. and if damaged by the carelessness of the collector such damage shall be made

good by the contractor for collection,

10. Obstruction of streets, etc.—If any street, avenue, alley, or road be obstructed so that vehicles used for the collection of any material mentioned in paragraph 1 of these specifications can not pass into, over, or through the same, the contractor for the collection of such material must cause it to be removed to collection vehicles on the streets, avenues, alleys, or roads which are not obstructed.

11. Warning signal-Manner of collection.—The contractor for the collection of any material described in paragraph 1 of these specifications must see that each collector employed by him gives, in such manner as may be directed by

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the superintendent of street cleaning, timely notice to the householder of his approach so that the material may be collected without undue delay. The contractor must see that no collector employed by him picks or sorts over material collected, and that it is transferred from the receptacles of householders to the vehicles used for collection without unnecessary delay or exposure and without spilling. The contractor must see that each collector employed by him who opens a gate, door, or window leading to any premises properly closes the same before departing.

12. Notices of collection days, etc.—The contractor for the collection of garbage or miscellaneous refuse and of ashes shall, at his own expense, issue cards. approved by the superintendent of street cleaning, stating the days for collecting may be between what hours the collector will call in each locality; shall, before beginning work, cause one or more copies of such cards to be left at every building from which such material is to be collected; and whenever it is proposed to make any changes in the days or hours of collection, and prior to making such change, shall cause one or more copies of cards showing proposed time of collection to be left at each building affected by it.

The information as to collection days and hours required on the above cards must be supplemented by such quotations from the police regulations concerning the size and nature of receptacles, their accessibility, and the character of the separation of the various classes of material called for by such regulations as may be ordered in writing by the superintendent of street cleaning, and such other information as may be desired by the contractor and approved by the superintendent.

Where collections are made semiweekly, at least two days must elapse between collections; where made three times a week, at least one day must elapse between collections.

13. Collection districts and map.—The contractor for the collection of any material mentioned in paragraph 1 of these specifications shall, before commencing work, and thereafter at least two weeks before each change, if there be any, from summer to winter service, and vice versa, subdivide the entire area from which collections are to be made into collection districts of such size as, for the purposes of his contract, can be readily served under ordinary circumstances by one vehicle; shall assign to each collection district a number; shall furnish the superintendent of street cleaning with a map showing the boundaries of each district, the number assigned to it, and the collection days in it; and shall forthwith notify said superintendent in writing of any change in boundaries and numbers of such collection districts which may be made after such map has been furnished and incorporate such changes on said map.

If said map is not furnished nor said notification given as herein provided, the superintendent of street cleaning shall withhold his certificate from the regular semimonthly pay voucher until such map or written notice is received

by him.

14. Ownership of material.—If a single contract be awarded for the collection and disposal of any material, all such material collected will be the property of the contractor from the time of its collection. If, however, separate contracts be awarded for the collection and for the disposal of any material the contractor for collection will have no ownership in the material collected except as may be necessary to enable him to transfer the same, but must deliver all such material, without alteration or diminution, except such as may result from the use of disinfectants and deodorizers, to the contractor for disposal. material will be the property of the contractor for the disposal thereof after it has been delivered to him by the contractor for collection.

15. Separate contracts for the collection and disposal and the transfer points.—If separate contracts be awarded for the collection and for the disposal of any material, and it is desired by the latter contractor to dispose of any such material at some place not in or within convenient hauling distance from the city of Washington, and the commissioners consent thereto, the latter contractor must establish and maintain in or within convenient hauling distance from said city such station or stations as in the opinion of the commissioners may be necessary for the reception and transfer of the material collected or delivered there, which latter stations must not be located at any place nor reduced in number nor changed in location without the consent of the commis-

16. Incombustible residue—presenting mixed material.—Where a contract is let for the disposal of any material or materials by burning, the driver for the

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District or for the collection contractor or any other person delivering such material or materials must not be kept waiting to empty, or after emptying his vehicle, or for any purpose whatever. If the material so presented is in its nature incombustible, or if it leaves an incombustible residue after burning, such material or residue must be disposed of by the contractor for disposal in a manner satisfactory to the commissioners.

If, however, material presented to any contractor for disposal is found to be mixed with any other class of material to the extent of 5 per cent or more it may be refused by said contractor, if authorized so to do by the representative of the street-cleaning department stationed at the place of reception, and the person delivering it may be required to separate said mixed material properly

or to remove it forthwith upon failure to do so.

17. Dumps for ashes.—If a contract be made for the collection of ashes and authorizing their disposal on such public dumps as may be controlled from time to time by the commissioners, the contractor for such collection and disposal shall provide his own safeguards at such dumping places and shall take such precautions as may be necessary to prevent accident. The commissioners will assume no liability for accidents resulting through the contractor's use of said dumping places. The superintendent of street cleaning shall station at such places a representative who shall have general supervision and control over the points at which dumping must be done, the time of opening and closing said dump, the prevention of all fires on the dump, the trimming and handling of all material, the persons permitted on the dump, and shall determine the character of such material as is presented for disposal. Only clean ashes will be accepted at such dumps, and the representative of the superintendent of street cleaning shall be empowered to refuse all ashes mixed with other materials brought to the dump and to require such mixed material to be separated or to order it removed forthwith. The contractor shall be bound to conduct the dumping in accordance with the directions of the superintendent of street cleaning and the contractor must comply with such directions.

18. Time of disposal.—Garbage, dead animals, miscellaneous refuse, and ashes must be within the digesting tanks or within the furnace or otherwise in process of actual disposal not later than 7 o'clock a. m. on the day following its delivery at the place of disposal. Such garbage and dead animals must be completely disposed of within 24 hours and all miscellaneous refuse and ashes within 72 hours after such delivery. The capacity of any plant or method established by any contractor must be sufficient to enable necessary repairs to

be made without interfering with the work of disposal.

19. Transportation.—Arrangements for transportation and the method of disposal must be such that regular daily disposal will not be interrupted by reason of (1) the obstruction of the Potomac River by ice or otherwise, (2) the effect of bad weather on roads, (3) inadequate railway facilities.

20. Lost articles.—Articles of special value found in the material or on the dead animals collected must be kept by the contractor for the disposal of such material or dead animal in his office for a period of one year after the finding

thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and as nearly as may be possible the place where found. A list of such articles shall be forwarded daily to the superintendent of street cleaning, describing each article found since the preceding report, and showing the collection district from which it came, the name of the finder, and such other information as may be of assistance in discovering the owner.

21. Plant.—Each contractor must establish and maintain without cost to the District of Columbia beyond the price stated in his proposal or proposals all such wharves, boats, cars, vehicles, buildings, furnaces, boilers, driers, presses, and other devices and apparatus as may be necessary to enable him to

perform the work specified in his contract or contracts.

22. Covered conveyances.—Material collected under these specifications must be transported by the contractor or contractors within the District of Columbia

in covered conveyances satisfactory to the commissioners.

23. Collection vehicles.—Vehicles used by the contractor for the collection of any class of material other than dead animals described in paragraph 1 of these specifications must be uniform and have capacities in exact multiples of 1 yard, except as otherwise authorized in writing by the commissioners. Such vehicles must be so constructed as to be loaded and unloaded and to carry their contents without offense to the public. They must be strongly built, must

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be plainly numbered on both sides and marked with the name and address of the collection contractor, and must be kept in good repair, well painted, thor-

oughly cleaned, and free from odor at all times.

24. Care and use of garbage receptacles, vehicles, etc.—Every receptacle used by the contractor for the collection of garbage, whether tank, can, barrel, or the body of a cart or wagon, must be metal, water-tight, strongly built, provided with a close-fitting metal of other tight-fitting cover satisfactory to the commissioners, and have a capacity of not less than 30 gallons. The cover, if made of metal, must be equipped with rubber or other pads to effectually prevent rattling and, together with the body of the receptacle, must be thoroughly washed inside and out once each 24 hours; if furnished by the contractor for disposal, this washing must be performed by said contractor.

Every vehicle used for the collection of miscellaneous refuse and for the collection of ashes must be so constructed as to prevent the escape of its contents during the process of transportation and must be covered with canvas or other cover. When in motion on streets and avenues it must be tightly closed or covered, so that its contents are not exposed to view, and while being filled it shall not be uncovered for a longer time than is necessary, and every reasonable precaution must be used in transferring the contents of the householders'

receptacles to prevent ashes and rubbish from blowing about.

25. Animals.—None but strong, serviceable horses or mules shall be used in connection with any work performed under these specifications, and illtreatment or neglect of same will not be permitted.

26. Inspection of vehicles.—Each contractor must present all vehicles used by him for inspection at such times and places as may be designated by the

commissioners.

27. Collection of dead animals.—The contractor for the removal of dead animals will be required to remove them promptly as they may be found and reported to him. The commissioners will, however, assume no responsibility for the correctness of such report as may be made by any employee in the service of the said District, and the contractor for the removal of dead animals shall not charge for, nor can be collect from said District, any loss or losses incurred in responding to notification for the removal of a dead animal where said animal has, prior to such contractor's arrival, been removed by some other person or where the owner of such animal refuses to consent to its removal. Each dead animal must be removed skillfully and without offense and transported in a closed vehicle to the place of disposal. Removal must take place, May to September, inclusive, within 6 hours, and from October to April, inclusive, within 10 hours after receipt of notification by the contractor by telephone or otherwise, or forthwith if directed to do so by the superintendent of street cleaning, and in the event or neglect so to remove the commissioners may perform such removal and charge the expense thereof to the contractor and may deduct and retain the cost thereof out of the moneys due or to become due to the contractor under this contract.

29. Disinfectants.—The contractor shall keep his plant and equipment disinfected in such manner and by the use of such disinfectants as the commis-

sioners may direct.

30. Collection of rubbish with other material.—If miscellaneous refuse is collected by the contractor for the collection of any other class of material, at the same time and with the same horses, men, and vehicles as are used for the collection of such other material, such miscellaneous refuse must be kept entirely separate and distinct from such other material, inclosed in tight sacks or other approved covered receptacle, or in a part of the vehicle partitioned off from the rest of, or in racks placed above, said vehicle, and such sacks or other receptacles must not be hung from the sides or body of the vehicle and must be so closed that their contents can not escape during the process of collection and transportation. Such method of combined removal shall not be put into effect without the consent and approval of the superintendent of street cleaning.

superintendent of street cleaning.

82. Dismissal of employees.—If an employee of a contractor use improper language or be under the influence of liquor while on duty, or accept or demand pay from citizens for service rendered, or falsify any report he may be called upon to make, or do any other act which in the opinion of the superintendent of street cleaning is inimical to the proper and efficient prosecution of the contract, the contractor by whom he is employed, shall, upon demand, at once discharge such employee from his service, and shall forthwith furnish such employee's full name and the nature of the work performed by him to the

superintendent of street cleaning. No contractor under these specifications shall employ, on any work under his contract, any person who has been dis-

charged under the foregoing requirements.

33. Reports by contractor.—The contractor for the collection of any material mentioned in paragraph 1 of these specifications shall make daily reports to the superintendent of street cleaning, on blanks approved by him, which reports shall show the number of each collection district, the number of each vehicle employed therein, and the number of full loads and parts of loads, and the weight of each, or, in the case of dead animals, the number and species collected. Such reports shall show also the number of men and of horses employed each day with each vehicle. The contractor must also furnish to said superintendent, daily, a complete list of all fallures on his part to comply with the requirements of his contract which have come to his notice during the preceding day, and the reason for such failure. The contractor for the collection and the contractor for the disposal of any material aforesaid shall furnish in writing such information in reference to the conduct of work under his contract as may be required from time to time by said superintendent or by the commissioners. If such information is not supplied within two weeks from the date of request for the same, the commissioners may, in their discretion, retain such money or moneys as may be due said contractor, until he has supplied the information requested.

34. Other business.—No contractor shall, without the written consent of the commissioners, engage in the collection or in the disposal of any material otherwise than as provided in such contract; nor shall he use any vehicle intended for the public collection of refuse of any sort under these specifications for any

other purpose, except with the written consent of the commissioners.

35. Telephone and visits.—The contractor for the collection and the contractor for the disposal of any material mentioned in paragraph 1 of these specifications shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense. The contractor for the collection of any such material shall call at the main office of the superintendent of street cleaning to receive orders, in person or through some responsible agent, at such times as the superintendent or the commissioners may direct. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, buildings, dumps, and all other sites in use by any of the contractors under these specifications.

36. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified shall be performed in a manner acceptable to him and to the com-

missioners.

37. Liquidated damages.—If the contractor fail at any time or times to promptly and properly collect, receive, or dispose of material or any part thereof, duly offered to him, as required by the contract, the commissioners shall have the right to perform such work, from time to time, and charge the expense thereof to the contractor, and deduct the same, from time to time, from any money or moneys due or to become due to him under the contract. It is hereby understood and agreed that the District of Columbia will be damaged by such failure or failures upon the part of the contractor in addition to the cost to the District of Columbia of doing said work, if done by the commissioners; that the amount of said damage is difficult, if not impossible, of definite ascertainment and proof; and it is hereby agreed that the amount of such damages exclusive of said cost shall be estimated, agreed upon, liquidated, and fixed in advance. and they are hereby agreed upon, liquidated, and fixed at the amount of \$2 for each such failure to collect garbage, night soil, or dead animals or ashes and refuse from buildings under the control of the commissioners, and the sum of \$1 for each such failure to collect ashes or refuse, exclusive, in each case, of the cost to the District of Columbia of doing said work, if the same is done by the commissioners, and the contractor hereby agrees to pay to the District of Columbia as such liquidated damages, and not by way of penalty, the said sum of \$2 for each such failure to collect garbage, night soil, or dead animals, or ashes and refuse from buildings under the control of the commissioners, and the sum of \$1 for each such failure to collect ashes or refuse, exclusive, in each case, of the cost to the District of Columbia of doing said work, if the same is done by the commissioners, and the amount or amounts of said sums which may become due to the District of Columbia, by the contractor, for liquidated damages, may be deducted from any money or moneys due or to become due to him under the contract. Nothing contained in this paragraph shall be so construed as to affect in any

manner the rights of the commissioners to annul this contract or to suspend the contractor for any cause as provided by paragraph 43 of the specifications,

38. Employment of inspectors at expense of contractor.—Ordinarily inspectors will be employed by the commissioners. If, however, on account of any apparent disregard by any contractor of the requirements of his contract, additional inspectors are, in the opinion of the commissioners, required, such inspectors will be employed by said commissioners in such number as they may deem necessary, and will be compensated by said commissioners at a rate not to exceed \$4 per diem each, which compensation will be charged to the contractor for the supervision of whose work such inspectors have been employed and deducted from any money due or which may become due to him.

39. Payments.—Payments, except those for hauling ashes and refuse from buildings under the control of the commissioners, will be made semimonthly by checks of the disbursing officer of the District of Columbia, the payment for the first half of each month to be in the nature of a payment on account, and the amount of such payment shall not exceed one-half of the amount due for the entire month. Payments for each entire month shall be one-twelfth part of the per annum contract price, less the amount paid on account for the first half of

said month.

40. Bond.—Good and sufficient bond with sureties or a surety company satisfactory to the commissioners will be required from each contractor conditioned for the faithful performance of the contract; that the contractor will be responsible for all claims for damages to persons, property, or premises arising by reason of the operation of any equipment or plant of the contractor, or the negligence of the contractor, his agents, servants, or employees engaged in the work under the contract, or in consequence of any negligence in carrying on the work under said contract, or by or on account of any act or omission of the contractor, his servants, agents, or employees, and that the contractor will promptly make payment to all persons supplying him with labor or material in the prosecution of the work provided for in the contract. The penalty of this bond will be equal to the specified or estimated annual amount of the contract, and if the estimated annual amount of the contract is less than 25 per cent of the total contract price covering the entire term through which the said contract is in force, the penalty of the bond will be 25 per cent of said total contract price.

41. Transfers.—No contract or any interest therein shall be transferred by the parties to whom the award is made, and any such transfer will be null and

void.

42. Patents.—The contractor will be required to hold the District of Columbia harmless against all claims for the use of any patented article, process, or appliance in connection with the contract herein contemplated.

43. Failure.—If the contractor fails to commence the work at the time specified for its commencement, or fails to prosecute the work to the satisfaction of the commissioners, or attempts to transfer or assign his contract or any interest therein, or fails to perform any of the covenants of the contract, the commissioners, on 36 hours' notice in writing, may annul the contract or contracts affected by such failure or attempted transfer or assignment; or, on such notice, the commissioners may at their election suspend the contractor from the work, and in case of such suspension may at their further election enter upon, perform, and complete said work embraced in the contract, or may employ some other person or persons to do so, or may perform part of said work and employ others to do the remainder. In case of such suspension the commissioners shall have the further right, at their election, to take possession of, without legal process, and to use such 13asonable force and means as may be necessary to take possession of the plant and equipment used by the contractor upon the work and to use the same in doing the work, without compensation for such use, license so to do being hereby given by the contractor, and the contractor hereby forever releases and discharges the commissioners and the District of Columbia from any and all damages or injuries which may be sustained, suffered, or claimed by reason of such possession and use of said plant and equipment.

All cost, damage, expense, and money expended or incurred by the commissioners of the District of Columbia by reason of such failure of the contractor and the cost of completing said work shall be charged against and paid by the contractor, and any money due or to become due him under the contract shall

be applied toward the payment thereof.

44. Naisance.—All work done under any contract must be performed in such a manner as, in the opinion of the commissioners, will not create a nuisance nor be injurious to public health.

45. Commissioners.-Wherever the word "commissioners" is used, it is un-

derstood to mean the Commissioners of the District of Columbia.

46. Supplementary service.—If any contractor for the collection and removal of any class of material described in paragraph 1 of these specifications, fails, upon request by the commissioners, to provide in full the schedule collection service as required by the contract, the commissioners may, after one week's notice in writing to said contractor, cause to be instituted a supplementary collection service by vehicles employed under their own direction and may charge the cost of such additional service to the said contractor; and the amount of such cost will be deducted from any moneys due or to become due said contractor, and retained by the District or paid to the person or persons employed by the commissioners to do such work.

### SPECIFICATIONS FOR THE COLLECTION AND DISPOSAL OF NIGHT SOIL.

[Work done under supervision of street-cleaning division.]

1. Definition.—The term "night soil" wherever it occurs in these specifications means the contents of all privies, and human fecal matter deposited on streets, avenues, alleys, roads, and open lots.

2. Hours of collection.—Night soil must be collected between 7 a. m. and

3 p. m.

3. Time allowed for collection.—The time allowed the contractor for any particular collection, after receipt of notice from the superintendent of street cleaning, shall not exceed 48 hours. Not more than 24 hours will be allowed to elapse between the time of collection, and disposal or removal from the District of Columbia.

4. Receptacles and manner of collection.—Night soil must be removed from the privies and transported to the disposal site by means of some air-tight apparatus, pneumatic or other process, satisfactory to the Commissioners of the District of Columbia, so as to prevent the contents from being agitated or exposed to the

open air during the process of such removal or transportation.

Night soil intended for collection will be placed by householders in box privies constructed in accordance with the law. For the details of the construction of such privies, attention of bidders is invited to an act of Congress entitled "An act to regulate in the District of Columbia the disposal of certain refuse. and for other purposes," approved January 25, 1898. Attention is also called to certain regulations of the health department in regard to the care and cleaning of privies. The commissioners will endeavor to enforce this act of Congress and the health department regulations so far as may be practicable, but nothing in this act or in the health department regulations shall relieve the contractor from making collections of night soil when, in the opinion of the superintendent of street cleaning, such collections are necessary. If, in making the collections for which notice has been given by the superintendent of street cleaning, the contractor discovers any failure on the part of the householder to comply with the requirements of the above-mentioned act of Congress or the health department regulations, he must immediately notify the superintendent of street cleaning in writing of any such failure.

5. Obstruction of streets, etc.—If any street, avenue, alley, or road be obstructed so that vehicles used for the collection of night soil can not pass into, over, or through the same, the contractor must cause it to be removed to collection vehicles on the streets, avenues, alleys, or roads which are not obstructed.

6. Collection.—The contractor must see that the collectors employed by him close any gates which they have opened in the process of collection and leave the premises after such collection in as good condition as before the collection was made.

7. Transportation.—Arrangements for transportation, and the method of disposal, must be such that regular daily disposal will not be interrupted by reason of (1) the obstruction of the Potomac River by ice or otherwise, (2) the effect of bad weather on roads. (3) inadequate railway facilities.

effect of bad weather on roads, (3) inadequate railway facilities.

8. Lost articles.—Articles of special value found in the night soil collected must be kept by the contractor in his office for a period of one year after the

finding thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and, as nearly as may be possible, the place where found. A report of the finding of any such article shall be forwarded immediately to the superintendent of street

cleaning, containing a full description of the article, name of the finder, and such other information as may be of assistance in discovering the owner.

9. Collection vehicles.—All collection vehicles used by the contractor must be so constructed as to be loaded and unloaded and to carry their contents without offense to the public. They must be strongly built and marked with the name and address of the contractor, and must be kept in good repair, well painted, thoroughly clean, and free from odor at all times. The contractor must present all vehicles used by him for inspection at any time or place which may be designated by the superintendent of street cleaning.

10. Animals.—When horses or mules are employed, none but strong, service-able animals shall be used in connection with any work performed under these specifications, and illtreatment or neglect of same will not be permitted.

11. Disinfectants.—The contractor shall keep his plant and equipment thoroughly disinfected. He shall also carry lime or other disinfectants on his collecting vehicles and each privy, after the contents have been removed, shall be thoroughly disinfected. A statement of the kinds of disinfectants to be used and the method of applying the same must be submitted to the superintendent of street cleaning for his approval previous to July 1, 1913.

12. Notice of collection.—The notification to collect, issued by the superintendent of street cleaning, will be based largely on requests from householders for collection. The commissioners will, however, assume no responsibility for the correctness of such notification by the superintendent of street cleaning, and the contractor shall not charge, nor can be collect from the District of Columbia, any loss or losses incurred in responding to said notification where the address given is incorrect or it is found that there is no night soil at such locality to be removed.

13. Nuisance.—All work done under this contract must be performed in such a manner as, in the opinion of the commissioners, will not create a nuisance nor

be injurious to public health.

14. Reports by contractor.—The contractor shall make daily reports to the superintendent of street cleaning on blank forms approved by him, which reports shall show the kind and number of collection vehicles, the number of men, the number of horses, the number and location of sites used for disposal purposes, the number and location of transfer points, the number of other vehicles or beats used in transportation in addition to those used in the collection service, the number of air-tight receptacles of night soil collected, and the capacity of each receptacle. The contractor shall also furnish in writing such information in regard to the conduct of the work under his contract as may be required, from time to time, by the said superintendent or by the commissioners. If such information is not received within two weeks from the date of request for the same, the commissioners may in their discretion retain such money or moneys as may be due said contractor until he has supplied the information requested.

15. Telephone and visits.—The contractor shall provide telephone connection

15. Telephone and visits.—The contractor shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense, and shall call at the main office of the superintendent of street cleaning to receive orders, in person or through some responsible agent every day except Sundays and legal holidays. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, buildings, dumps, and all other sites in use by the con-

tractor under these specifications.

16. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified shall be performed in a manner acceptable to him and to the commissioners.

SPECIFICATIONS FOR THE COLLECTION AND DISPOSAL OF ASHES AND REFUSE FROM PUBLIC BUILDINGS UNDER THE CONTROL OF THE COMMISSIONERS.

[Work done under supervision of street-cleaning division.]

1. Work to be done.—The work to be done consists of the collection and disposal of all ashes and refuse from the following buildings under the control of the commissioners, viz, public-school buildings, houses of fire-apparatus companies, police stations, District Building, municipal lodging house, police court, public library and branches, Home for ex-Union Soldiers and Sailors, and from any other District institutions or buildings that the commissioners may order, the same to be disposed of as required by regulations of the District of Columbia. Ashes may become the property of the contractor, or, at his option, may

be deposited on the dumps designated from time to time by the commissioners and in accordance with their direction. Paper and other light refuse must be removed in sacks or bags tightly tied, or otherwise secured, so that none of the contents can escape in loading or in transportation, and such refuse may become the property of the contractor or may, at his option, be delivered to the contractor for the disposal of miscellaneous refuse at the point or points designated by said latter contractor and approved by the commissioners.

2. Quantity.—Nothing in this contract shall be so construed as to prevent the District of Columbia from hauling such quantities of such ashes and refuse, or from permitting others to remove so much of the same without cost to the District, as the commissioners may desire. The removal by the contractor of less than a full load will not be permitted. Refuse and ashes must be hauled sepa-

rately and must not be mixed.

It is estimated that approximately 10,000 cubic yards of ashes and refuse will be offered to the contractor each year for collection and disposal, and this amount will be used in arriving at the amount of bond, but the commissioners will assume no responsibility as to the correctness of this estimate.

3. Hours for collection.—Collections must be made between 7 a. m. and 6 p. m.

4. Time allowed for collection.—Collections must be made within 48 hours after notice from the superintendent of street cleaning, and failure to make such collections will render the contractor liable to the provision of this con-

tract providing for failure and for liquidated damages.

5. Dumps for askes.—If the commissioners authorize the disposal of askes on such public dumps as may be controlled by them from time to time, the contractor shall provide his own safeguards at such dumping places, and shall take such precautions as may be necessary to prevent accident. sioners will assume no liability for accidents resulting through the contractor's use of said dumping places. The superintendent of street cleaning shall station at such places a representative, who shall have general supervision and control over the points at which dumping must be done, the time of opening and closing said dump, the prevention of all fires on the dump, the trimming and handling of all material, the persons permitted on the dump, and shall determine the character of such material as is presented for disposal. Only clean ashes will be accepted at such dumps, and the representative of the superintendent of street cleaning shall be empowered to refuse all ashes mixed with other materials brought to the dump and to require such mixed material to be separated, or to order it removed forthwith. The contractor shall be bound to conduct the dumping in accordance with the directions of the superintendent of street cleaning, and the contractor must comply with such directions.

6. Collection vehicles.—Collection vehicles must have tight bodies and capacities of 1 cubic yard or exact multiple thereof, must be strongly built, well painted, in good repair, and plainly numbered on both sides and marked with the name and address of the collection contractor. No vehicle is to be used unless measured by the sealer of weights and measures of the District, who will mark in a conspicuous place on the body the capacity of each when filled with a "well rounded-off" load. Ashes must be transported within the District of

Columbia in covered vehicles satisfactory to the commissioners.

7. Animals.—When horses or mules are employed, none but strong, serviceable animals shall be used in connection with any work performed under these specifications, and ill treatment or neglect of same will not be permitted.

8. Notice of collection.—The notification to collect, issued by the superintendent of street clearing, will be based largely on requests from buildings for collection. The commissioners will, however, assume no responsibility for the correctness of such notification by the superintendent of street cleaning, and the contractor shall not charge nor can he collect from the District of Columbia any loss or losses incurred in responding to said notification where the address given is incorrect, or it is found that there is no ashes or refuse at such locality to be removed.

9. Telephone and visits.—The contractor shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense, and shall call at the main office of the superintendent of street cleaning to receive orders in person or through some responsible agent every day except Sundays and legal holidays. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, buildings, dumps, and all other sites in use by the contractor under these specifications.

10. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified shall be performed in a manner acceptable to him and to the commissioners.

11. Lost articles.—Articles of special value found in the ashes or refuse collected must be kept by the contractor in his office for a period of one year after the finding thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and as nearly as may be possible the place where found. A report of the finding of any such article shall be forwarded immediately to the superintendent of street cleaning containing a full description of the article, name of the finder, and such other information as may be of assistance in discovering the owner.

## REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS.

WASHINGTON, September 9, 1914.

Siz: I have the honor to forward herewith several tables showing results of the operations of this office during the fiscal year ending June 30, 1914.

In connection with asphalt block referred to in Table 4, I might say as matter of record that the plant of the Washington Asphalt Block & Tile Co. was completely destroyed by fire during the morning of January 4 last. This in no way embarrassed the District, as the company's manufactured supply on hand has been adequate to meet the District needs. I am advised the plant will resume operations October next.

Municipal asphalt plant.—As you know, this plant is operated under the direction of the engineer of highways. Laboratory tests are made in this office of all materials entering into the manufacture of its product, as is also made tests of the output. Formulas as to the preparation of materials are given the superintendent by this office. The output has proven satisfactory in the repair of cuts and patchwork in asphalt pavements—product also used in the paving of Myrtle Street, between North Capitol and First Streets NE.

All other new pavements and resurfacing were, as formerly, laid under contract.

Testing of cement.—With a view of definitely determining whether or not cement actually attains its hard set within the time prescribed by specifications prescribed by Executive order covering all cement for use by the Government, i. e., 10 hours, the office during the year inaugurated the practice of shifting the hours of duty of the men engaged in making the actual physical tests so that one every fourth week works from 4 to 11 o'clock p. m., thus enabling the office to make frequent needle tests and to have under visual inspection action of the cement during the whole of the time prescribed for attainment of its hard set.

## Total number of samples tested.

Asphalts:	
Bermudez	9
Mexican	2
Standard macadam	1
Sun Co. (cement)	12
Trinidad, Lake, crude	1
Asphalt mixtures:	
Binder	4
Block	25
Block mixture	23
Cement (binder)	101
Cement (block)	25
Cement (topping)	304
Cement (concrete)	15
Concrete mixture	36
Topping mixture	230
Topping (old surface material)	11
Cement, Portland	9, 955
Lampblack	4

Oils:	
Flux	6
Fuel	18
Residuum	13
Road	30
Pitch, paving	3
Sal ammoniac	1
Sands	159
Stone:	
Binder	52
Crusned	28
Limestone dust	14
Trap-rock screenings	11
Tar	6
Miscellaneous	85
-	
Total	11, 184

### ASPHALTS.

Test of samples of asphalt used in the laying and repairing of pavements for the District of Columbia showed the following percentage of bitumen soluble in carbon bisulphide:

From Cranford Paving Co.:	
8 samples Bermudez, refined, representing 1,340 tons	93. 81
2 samples Aztec asphalt cement, representing 36 tons	
From municipal asphalt plant:	
12 samples Sun Co. cement, representing 332.52 tons	99. 13
From Washington Asphalt Block & Tile Co.:	
1 sample Trinidad Lake, crude, representing 1,300 tons	<sup>1</sup> 53. 86

### ASPHALT CEMENTS.

Penetration results of asphalt binder, concrete, and topping used by the District and paving companies.

## [Penetrations at 77° F.]

	asp		Municipal asphalt	Washing- ton Asphalt Block &
			plant— Sun Co.	Tile Co.— Lake Trini- dad block.
Number of samples	101	82	229	25
Office	65 65	64 60	63	26 28
Lowest test— Office Yard	51 50	52 50	46	18 18
Average of all samples tested: Office	60 60	56 56	53	22 21

## BINDER STONE.

During the year there were examined 52 samples of binder stone used in the laying and repairs of asphalt pavements, with no rejections.

Cranford Paving Co.:		
Samples	52	2
Cubic yards	530	)

#### ASPHALT BINDER MIXTURE.

Analysis of 4 samples taken from the Cranford Paving Co. showed an average of bitumen soluble in carbon bisulphide as follows:

Cranford Paving Co.:	
Samples	4
Bitumen soluble in carbon bisulphideper cent	4. 3

#### ASPHALT SURFACE MIXTURE.

During the year 87 samples were collected from the Cranford Paving Co. for examination and analysis. The following tables show the maximum, minimum, and average per cent bitumen contained and the average mesh composition of mineral aggregate used:

	Samples.	Per cent bitumen.		
		Highest.	Lowest.	Average.
Cranford Paving Co.: Asphalt, Bermudez. Asphalt, Bermudez 75 per cent, Astec 25 per cent. Astec.	82 4 1	11. 6 10. 8 10. 5	9. 8 10. 4 10. 5	10, 8 10, 6 10, 5

### MESH COMPOSITION OF AGGREGATE USED IN MIXTURE.

Retained on sieve having—	Per cent.
20 mesh per linear inch	6.8
40 mesh per linear inch	23. 1
60 mesh per linear inch	28. 8
80 mesh per linear inch	15. 6
100 mesh per linear inch	6. 9
Passing 100 mesh per linear inch	18.8

## ASPHALT BLOCK.

About 882,609 paving block manufactured by the Washington Asphalt Block & Tile Co. were used in the paving of avenues, streets, and alleys of this city during the year, in the manufacture of which was used Trinidad Lake asphalt fluxed with petroleum residuum and a mineral aggregate composed of Potomac granite, trap rock, and limestone.

Average results of tests of the asphalt cement and mineral aggregate used in the manufacture of paving block.

#### ASPHALT CEMENT.

	As origi- nally used in mixture.	Reduced to 50 per cent purity by addition of limestone dust for laboratory test.
Bitumen soluble in carbon bisulphide	60. 44 22 115 10. 8 . 7	50, 86 17 71 4 4

### ASPHALT BLOCK MIXTURE.

Specific gravity (manufactured block)	2.430
Bitumen soluble in carbon bisulphideper cent	7.0
Mesh composition of mineral aggregate:	
Retained on \(\frac{1}{2}\)-inch mesh sievedodo	1.8
Retained on 20 mesh per linear inchdodo	<b>59</b> . 0
Retained on 100 mesh per linear inchdodo	<b>16.</b> 3
Passing 100 mesh per linear inchdodo	22. 9

#### LIMESTONE DUST USED IN SURFACE MIXTURE.

This material is used as a filler to reduce the void in the sand used in asphalt surface mixtures. During the year there were examined 14 samples, all of which passed the required degree of fineness, i. e., all to pass a 30 and not less than 85 per cent to pass a 100-mesh sieve.

	Samples.	Tons.
Cranford Paving Co	8 6	200 180

### SAND USED IN SURFACE MIXTURE.

Of this material, 142 samples, representing 19,769 cubic yards, were inspected, of which 9,990 cubic yards were rejected on account of coarseness and excessive percentage of mud.

	Samples.	Accepted.	Rejected.
Cranford Paving Co	135 7		Cubic pards. 9,990

### PETROLEUM RESIDUUM.

All residuum used during the year by the contractors in the preparation of asphalt cement was the product of the Standard Oil Co. A total of 13 samples were submitted by the contractors for tests and examination, which showed the following:

		Samp	les.	Pounds.
Cranford Paving Co. Washington Asphalt Block & Tile Co.			5 8	250, 000 400, 937
Cran Pavir		nford ng Co.	Wa	shington Asphalt ck & Tile Co.
Specific gravity:		0481		0 0651

	Paving Co.	Block & Tile Co.
Specific gravity: Highest	0. 9481	0, 9651
Lowest	.9057 .9297	.9867 .9442
Highest	17. 6 24. 6	16.6 19.5
Average. Fiash (* F.): Highest	20, 6 365	18.3
Lowest	320 344	395 325 300
Burns (* F.); Highest Lovest	500 380	490 470
Average Loss at 400° F. for 30 hours:	461	477
Highest	20, 30 1, 80	9.80 .80
Average	7.46	6.02

#### OIL AZTEC, HEAVY.

OIL, AFTEC, HEAVY.		
One sample was submitted from the Cranford Paving Co., representing 52,000 pounds.		
Bitumen soluble in carbon bisulphideper cent_ 99.78  Ashdo14		
Ash       do       .14         Specific gravity at 60° F       0.9658         Flash (New York closed tester)       degrees F       435         Burn (New York closed tester)       do       525         Loss 400° F., 19 hours       per cent       6         Water       None.		
ASPHALT FLUX.		
Six samples were submitted by the Cranford Paving Co., representing 300,000 pounds.		
Bitumen soluble in carbon bisulphide       per cent       99. 80         Ash       do       .22         Specific gravity at 60° F       1.004		
Specific gravity at 60° F 1.004		
Flash (New York closed tester)degrees F 354		
Burn (New York closed tester)do427		
Loss after heating 400° F., 18 hoursper cent4. 75 Water		
ASPHALT CONCRETE.		
During the year there were laid by the Cranford Paving Co. under contract about 57,833 square yards of asphalt concrete, laid on crushed stone, or 6-inch concrete base. The asphalt concrete mixture consisted of two parts trap rock. crushed to a size from three-fourths inch to dust, and one part concrete sand, to which was added 5 per cent limestone dust.  The stone and sand were heated to a temperature of about 300° F., the limestone being added in the cool state to the hot mixture and thoroughly mixed in an asphalt mixer. Hot asphalt cement (Bermudez) was then added and the whole thoroughly mixed for about five minutes; it was then hauled from the paving plant to the site of the work and spread over the roadbed to a thickness of 3 inches, then rolled with 5 and 10 ton steam rollers until thoroughly compact. Over this surface was then spread a thin coating of asphalt cement for the purpose of filling voids. A light coating of trap-rock screenings three-eighths to one-eighth inch was then spread on the surface as a top coating and rolled with a 10-ton steam roller.  The following is a table showing average of laboratory tests of asphalt cement and mineral aggregate used in the preparation of the asphalt concrete.  ASPHALT CEMENT.		
Bitumen soluble in carbon bisulphide (not including flush coat) 7.5 Penetration at 77° F., 5 seconds, 100 grams 59.0		
CONCRETE MIXTURE-MINERAL AGGREGATE MESH COMPOSITION.		
Retained on—		

## ASPHALT SURFACE MIXTURE (ASPHALT CONCRETE) - MUNICIPAL ASPHALT PLANT.

During the year there were examined 4 samples of asphalt concrete, representing about 70 cubic yards. This material was a mixture composed of traprock acreenings 74 per cent, fine sand 15 per cent, limestone dust 4 per cent, and asphalt cement 7 per cent (penetration at 77° F., 5 seconds, 100 grams, 51). The average mesh composition of this mineral aggregate is shown in the table below. The stone, sand, and limestone dust were heated to a temperature of about 350° F., in the heating drum of a Warren portable asphalt mixer. The hot asphalt was then added and the whole thoroughly mixed for about five minutes; it was then discharged into carts and hauled to the site of work, which consisted principally of repairs to asphalt pavements. Examination of the material produced showed an average of bitumen soluble in carbon bisulphide 6 per cent (not including flush coat).

### MINERAL AGGREGATE MESH COMPOSITION.

Retained on—	cent.
‡-inch mesh	4. 2
i-inch mesh	18.6
-inch mesh	26. 2
8 mesh per linear inch	<b>9</b> . 6
10 mesh per linear inch	1.4
20 mesh per linear inch	3. 2
40 mesh per linear inch	10 9
60 mesh per linear inch	11.7
80 mesh per linear inch	4.4
100 mesh per linear inch	1.0
Passing 100 mesh per linear inch	

There were examined 230 samples of asphalt concrete mixture, representing about 6,375 cubic yards. This material was a mixture composed of old asphalt surface mixture (topping and binder) which, after being removed from the street, was hauled to the municipal asphalt plant and crushed in a Noyes rotary crusher to a fineness ranging from 1 inch to dust; to this material was then added trap-rock screenings, fine sand, limestone dust, and asphalt cement in about the following proportions: Old asphalt surface material, 66 per cent; fine sand, 23 per cent; trap-rock screenings, 6 per cent; limestone dust, 2 per cent; and asphalt cement, 3 per cent (penetration at 77° F., 5 seconds, 100 grams 53), the whole being mixed as above described, under asphalt concrete, and used for the same purpose.

Following are average results of tests showing percentage of asphalt and mesh composition of mineral aggregate of the old asphalt surface material.

## OLD ASPHALT SURFACE MIXTURE (AFTER CRUSHING).

Bitumen soluble in carbon bisulphide\_\_\_\_\_per cent\_\_

### MINERAL AGGREGATE, MESH COMPOSITION.

Retained on—	Per cent.
4-inch mesh	11.3
1-inch mesh	
8 mesh per linear inch	
10 mesh per linear inch	
20 mesh per linear inch	
40 mesh per linear inch	
60 mesh per linear inch	
80 mesh per linear inch	
100 mesh per linear inch	
Paging 100 mesh per linear inch	

### ASPHALT CONCRETE MIXTURE (AFTER PRODUCTION AVERAGE).

Bitumen soluble in carbon bisulphide\_\_\_\_\_per cent\_\_

MESH COMPOSITION, MINERAL AGGREGATE.	
Retained on—	Per cent.
1-inch mesh	3. 2
i-inch mesh	12. 2
8 mesh per linear inch	10.0
10 mesh per linear inch	
20 mesh per linear inch	5. 1
40 mesh per linear inch	19. 8
60 mesh per linear inch	
80 mesh per linear inch	10. 1
100 mesh per linear inch	2.5
Passing 100 mesh per linear inch.	

#### TRAP-BOCK SCREENINGS.

During the year there were examined 11 samples of trap-rock screenings used in the laying of asphalt concrete pavements with no rejections.

	Samples.	Cubic yards.
Cranford Paving Co	6	3,750
Municipal asphalt plant	5	435

#### HYDRAULIC CEMENTS.

Barrels inspected and the average results of tests on same-Portland cement.

	Atlas.	Dragon.	Naza- reth.	Saylor's.	Secur- ity.	Tide- water.	Vul- canita.
Number of barrels	170	150 15	1,730	1,440	23, 160	55, 865	17,680
Number of samples	17	15	173	144	2,316	5.586	1.768
Fineness passing 100-mesh sieve per cent	94.9	94.0	97.2	96.2	95.7	90.9	1,768 94.1
Fineness passing 200-mesh sievedo	78.2	80.1	84.3	81.0	79.9	78.4	77.8
Initial set (hours and minutes)	2-0	3-25	4-10	5-0	4-14	4-28	5-13
Hard set (hours and minutes)	4-0	5-20	6-26	7-21	6-41	7-24	5-18
Per cent water used:				1			
Neat cement	23.0	25.0	23.1	23.0	22.8	22.7	22.4
3 parts Ottawa sand	10.8	10.7	10.3	10.3	10.3	10. i	10.8
Temperature of air and water	91	86	83	80	81	77	82
Tensile strength in pounds per square inch:			-				,
Nest, 7-day	683	702	849	761	758	755	767
Neat, 28-day		742	881	833	823	840	822
Sand (1.3), 7-day	365	361	449	305	324	312	847
Sand (1.3), 28-day	437	429	469	378	412	403	438
Specific gravity	3, 137	3, 232	3. 147	8, 183	8. 145	3.076	3, 179

In testing cement samples are taken from 10 barrels of each 100-barrel lot and tested individually. The 10,019 samples tested represent 100,195 barrels, of which 1,370 were rejected.

Cement tested and by whom submitted.	Barrels.
Brenizer, W. F. (Dragon)	150
Cranford Paving Co. (Vulcanite)	
District of Columbia:	11, 000
Barrels,	
Nazareth1,730	
Security 170	
Tidewater 51, 495	
ridewater 51, 450	53,395
Gummel, E. G.:	00,000
Atlas 170	
Tidewater 1,650	
11dewater 1, 050	1, 820
Harmon & Wales (Midamaton)	920
Harper & Voigt (Tidewater)	22, 990
Hoge & Luebkert Co. (Security)	1, 440
Q Street Bridge (Saylors)	
Washington Asphalt Block & Tile Co (Tidewater)	1, 800
m.a.i	100 105
Total	• T
<b>63977°—D c 1914—Vol. 2—6</b> Digitized by	oogle

Table No. 1 shows total number samples tested or analyzed during the year. Most of these were collected direct by this office, others were submitted by various departments of the District, reports showing results submitted to the immediate heads thereof.

The work of the office has been kept current throughout the year.

Very respectfully,

J. O. HABGBOVE,
Inspector of Asphalts and Cements.

Capt. Mark Brooke,

Corps of Engineers, United States Army,

Assistant to Engineer Commissioner. District of Columbia.

## REPORT OF THE SURVEYOR.

Washington, September 18, 1914.

SIB: I have the honor to transmit herewith the following report of the operations of this office, including the street-extension division, for the year ended June 30, 1914.

For all work done for the citizens of the District known as "private work" fees are charged, the amount of each fee being determined by a schedule

approved by the commissioners.

The receipts for that class of work during the past fiscal year amounted to \$13,535.90. This shows a decrease over the receipts for the previous year, due no doubt to the general building depression which prevails. Building operations during the past year have not been so extensive as in former years, and this very materially affects the receipts of this office. However, the office has been engaged in a large amount of other classes of work, such as surveys for the various District departments and the United States Government.

The number of orders received for which fees are charged was 3,329. These do not include surveys for the District of Columbia or the United States.

The number of surveys made for the various District departments, such as surveys of streets, alleys, schoolhouse sites, engine-house sites, etc., was 82.

In addition to this work, the office has made during the past year a topographical survey of the 1,500 acres adjacent to the Occoquan workhouse for the reformatory. This survey required about three months of field work by a large field party from this office.

Much work has also been done for the United States Engineer's office in connection with the condemnation of land for the reclamation of the Anacostia

River flats.

In addition to the above, a survey was made for the addition to the Zoological Park between Zoological Park and Connecticut Avenue and also a number of surveys under the excise regulations to determine distances between saloons and schoolhouses and churches.

Under the head of private work, the total number of new blocks created in new subdivisions of agricultural land was 59, with a total number of new lots

of 2,706, both of which are a decided increase over the previous year.

On account of the falling off in private survey work the appropriation for per diem employees was not fully expended, returning a balance of about \$1,600; but it is earnestly hoped that the per diem appropriation for the next fiscal year will not be reduced on this account, because it is believed that the past year was an off year, and the office, while it could have used this appropriation for certain lines of work, adopted the course that was thought proper under the circumstances.

The following table is submitted for your information, showing the relation of the work for the past fiscal year with that of the preceding year:

Certificates of survey issued covering one or more lots		Fiscal	year.
Individual lots or parts of lots surveyed in city and county		1912–13	1913-14
Certificates of survey issued covering one or more lots	FOR PRIVATE PARTIES.		
Duplicates of above recorded in survey certificate books.   1,146   1,01   Separate surveys made to verify walls.   932   74   Individual buildings inspected as to location of new walls.   2,302   1,50   Walls moved before final certification.   948   76   Large tracts in country surveyed, subdivided and recorded.   22   1   Outline surveys in country of unsubdivided tracts.   55   3   Subdivision blanks prepared.   366   356   Duplicate subdivision blanks prepared for assessor.   396   335   Subdivisions recorded.   336   357   Total of individual new lots in subdivisions   2, 388   2, 70   Plats of one or more recorded lots to accompany applications for building permits (commonly called building plats).   1, 290   97   Plats made under regulations for theaters, stables, motors, etc.   111   19   Indorsements on survey plats.   3, 274   3, 32   74   Estimates of cost issued in triplicate.   3, 874   3, 32   74   Estimates of cost issued in triplicate.   2, 947   2, 59   Total of fees paid to collector of taxes by private parties.   316,608.32   \$13,535.9   FOR THE DISTRICT OF COLUMBIA.   104   8   Plats recorded (condemnations, dedications, etc.)   63   5   74   Reports concerning walls to building inspector   971   78   Assessment and taxation plats recorded   252   19   MISCELLANEOUS.   1,146   1,000   MISCELLANEOUS.   1,240   1,240   MISCELLANEOUS.   1,240   MISCELLANEO	Individual lots or parts of lots surveyed in city and county	2, 254	1,508
Separate surveys made to verify walls.   932   1,50	Certificates of survey issued covering one or more lots	1,146	1,018
Separate surveys made to verify walls.   932   1,50	Duplicates of above recorded in survey certificate books	1,146	1,018
Walls moved before final certification Large tracts in county surveyed, subdivided and recorded.  22 23 24 25 26 27 28 28 29 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Separate surveys made to verify walls.	932	748
Walls moved before final certification Large tracts in county surveyed, subdivided and recorded.  22 23 24 25 26 27 28 28 29 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	individual buildings inspected as to location of new walls.	2,302	1.594
Bibdivision blanks prepared. 386 35 28 29 29 29 29 29 29 29 29 29 29 29 29 29	Walls moved before final certification	948	761
Bibdivision blanks prepared. 386 35 28 29 29 29 29 29 29 29 29 29 29 29 29 29	Large tracts in county surveyed, subdivided and recorded	22	19
Bibdivision blanks prepared. 386 35 28 29 29 29 29 29 29 29 29 29 29 29 29 29	Ontline surveys in county of unsubdivided tracts	55	20
Total of individual new lots in subdivisions 2, 388 2,70  Plats of one or more recorded lots to accompany applications for building permits (commonly called building plats). 1,290 97  Plats made under regulations for theaters, stables, motors, etc. 1111 19  Indorsements on survey plats 932 74  Extinates of cost issued in triplicate. 3,874 3,32  Plats made up on order of private parties 2,947  Total of fees paid to collector of taxes by private parties 316,608.32 \$13,535.9  FOR THE DISTRICT OF COLUMBIA. 104 8  Plats recorded (condemnations, dedications, etc.) 63 5  Postal-card reports concerning walls to building inspector 971 78  Assessment and taxation plats recorded 971 78  Assessment and taxation plats recorded 972 1932 1932 1932 1932 1933	Subdivision blanks researed	308	
Total of individual new lots in subdivisions 2, 388 2,70  Plats of one or more recorded lots to accompany applications for building permits (commonly called building plats). 1,290 97  Plats made under regulations for theaters, stables, motors, etc. 1111 19  Indorsements on survey plats 932 74  Extinates of cost issued in triplicate. 3,874 3,32  Plats made up on order of private parties 2,947  Total of fees paid to collector of taxes by private parties 316,608.32 \$13,535.9  FOR THE DISTRICT OF COLUMBIA. 104 8  Plats recorded (condemnations, dedications, etc.) 63 5  Postal-card reports concerning walls to building inspector 971 78  Assessment and taxation plats recorded 971 78  Assessment and taxation plats recorded 972 1932 1932 1932 1932 1933	Demiliate subdivision blanks research for assessor	204	
Total of individual new lots in subdivisions 2, 388 2,70  Plats of one or more recorded lots to accompany applications for building permits (commonly called building plats). 1,290 97  Plats made under regulations for theaters, stables, motors, etc. 1111 19  Indorsements on survey plats 932 74  Extinates of cost issued in triplicate. 3,874 3,32  Plats made up on order of private parties 2,947  Total of fees paid to collector of taxes by private parties 316,608.32 \$13,535.9  FOR THE DISTRICT OF COLUMBIA. 104 8  Plats recorded (condemnations, dedications, etc.) 63 5  Postal-card reports concerning walls to building inspector 971 78  Assessment and taxation plats recorded 971 78  Assessment and taxation plats recorded 972 1932 1932 1932 1932 1933	Departure surprised indicate property for assessor	380	900
Plats made under regulations for theaters, stables, motors, etc	Suggly Islands I COU (USU)	333	
Plats made under regulations for theaters, stables, motors, etc	Total of individual new lots in subdivisions	2,358	2,700
Plats made under regulations for theaters, stables, motors, etc	rists of one or more recorded lots to accompany applications for building permits		
Indorsements on survey plats. 1,146 Indorsements on survey plats 932 The Indorsements on wall survey plats 932 The Indorsements on wall survey plats 932 The Indorsements of cost issued in triplicate. 932 The Indorsements of cost issued in triplicate. 934 Total of sees paid to collector of taxes by private parties 914,608.32  FOR THE DISTRICT OF COLUMBIA. 104 Surveys for the District of Columbia 104 Plats recorded (condemnations, dedications, etc.) 63 5 Postal-card reports concerning walls to owners 971 Reports concerning walls to building inspector 971 Assessment and taxation plats recorded 252  MISCELLANEOUS.	_(commonly called building plats)	1,290	973
Indorsements on survey plats. 1,146 Indorsements on survey plats 932 The Indorsements on wall survey plats 932 The Indorsements on wall survey plats 932 The Indorsements of cost issued in triplicate. 932 The Indorsements of cost issued in triplicate. 934 Total of sees paid to collector of taxes by private parties 914,608.32  FOR THE DISTRICT OF COLUMBIA. 104 Surveys for the District of Columbia 104 Plats recorded (condemnations, dedications, etc.) 63 5 Postal-card reports concerning walls to owners 971 Reports concerning walls to building inspector 971 Assessment and taxation plats recorded 252  MISCELLANEOUS.	Plats made under regulations for theaters, stables, motors, etc	111	199
Estimates of cost issued in triplicate. 3,874 2,947 Plats made up on order of private parties 2,947 Total of sees paid to collector of taxes by private parties \$10,608.32 \$13,535.9  FOR THE DISTRICT OF COLUMBIA.  Surveys for the District of Columbia 104 8 Plats recorded (condemnations, dedications, etc.) 63 5 Postal-card reports concerning walls to owners 971 78 Assessment and taxation plats recorded 252 19  MISCELLANEOUS.	Indorsements on survey plats	1,146	1,018
Estimates of cost issued in triplicate. 3,874 2,947 Plats made up on order of private parties 2,947 Total of sees paid to collector of taxes by private parties \$10,608.32 \$13,535.9  FOR THE DISTRICT OF COLUMBIA.  Surveys for the District of Columbia 104 8 Plats recorded (condemnations, dedications, etc.) 63 5 Postal-card reports concerning walls to owners 971 78 Assessment and taxation plats recorded 252 19  MISCELLANEOUS.	Indorsements on wall survey plats	932	748
Plats made up on order of private parties	Estimates of cost issued in triplicate	3.874	3,329
POR THE DISTRICT OF COLUMBIA.  Surveys for the District of Columbia.  Plats recorded (condemnations, dedications, etc.). 63 5 Postal-card reports concerning walls to owners. 932 74 Reports concerning walls to building inspector. 971 78 Assessment and taxation plats recorded. 252 19  MISCELLANEOUS.	Plats made up on order of private parties	2 017	
POR THE DISTRICT OF COLUMBIA.  Surveys for the District of Columbia.  Plats recorded (condemnations, dedications, etc.). 63 5 Postal-card reports concerning walls to owners. 932 74 Reports concerning walls to building inspector. 971 78 Assessment and taxation plats recorded. 252 19  MISCELLANEOUS.	Total of fees raid to collector of towar by rejunta parties	CIR 609 22	
Surveys for the District of Columbia. 104 8 Plats recorded (condemnations, dedications, etc.). 63 5 Postal-card reports concerning walls to owners. 932 74 Reports concerning walls to building inspector 971 78 Assessment and taxation plats recorded 252 19 MISCELLANEOUS.	voice of loos part to confector of taxes by private parties	911,005.02	410,000.80
Plats recorded (condemnations, dedications, etc.). 63 5 Postal-card reports concerning walls to owners. 932 74 Reports concerning walls to building inspector. 971 78 Assessment and taxation plats recorded. 252 19 MISCELLANEOUS.	FOR THE DISTRICT OF COLUMBIA.	i	
Plats recorded (condemnations, dedications, etc.). 63 5 Postal-card reports concerning walls to owners. 932 74 Reports concerning walls to building inspector. 971 78 Assessment and taxation plats recorded. 252 19 MISCELLANEOUS.	Summan for the Winter of Colours In		
Postal-card reports concerning walls to owners	surveys for the District of Columbia.	104	852
Reports concerning walls to building inspector. 971 78 Assessment and taxation plats recorded 252 19 MISCELLANEOUS.	Plats recorded (condemnations, dedications, etc.)	63	_50
Assessment and taxation plats recorded	rostal-card reports concerning walls to owners	932	748
Assessment and taxation plats recorded	Reports concerning walls to building inspector	971	783
	Assessment and taxation plats recorded	252	195
Total of surveys for the District of Columbia and private parties	MISCELLANEOUS.		
Total of surveys for the District of Columbia and private parties		1	l .
Total of plats public and private including plats drawn in books 5 315 4 73	Total of surveys for the District of Columbia and private parties	2, 259	1.897
	Total of plats, public and private, including plats drawn in books	5,315	4, 720

### STREET EXTENSION.

Attached to this report is report of the assistant surveyor for the fiscal year ended June 30, 1914, as to matters relative to streets and alleys.

There were in court during the past year 15 cases for the widening and extension of alleys, of which 6 jury verdicts were confirmed and 8 new cases were filed.

There were in court 28 cases for the widening and extension of streets and condemnations for parks, of which 9 jury verdicts have been confirmed, with 18 new cases filed, the principal ones being for the widening of Georgia Avenue, Benning Road, Anacostia River Park, and New Hampshire Avenue extended. There are other proposed streets that should certainly be condemned, and which it is believed are as important for the future development of their respec-

There are other proposed streets that should certainly be condemned, and which it is believed are as important for the future development of their respective sections and as much in the public interest as those in process of condemnation, and it is recommended that, under authority already vested in the commissioners, Calvert Street and Cleveland Avenue from Connecticut Avenue westward be condemned. This would make accessible to the city a section now very much pocketed for lack of streets to the main thoroughfares of the city. The longer this is delayed the more expensive it will be to those who will be compelled to stand the assessments for benefits. The extension of these streets would not entail any cost upon the District, and it is believed that a majority of the property owners who would have to pay for the condemnation would be in favor of their extension. A fact that should be brought to your attention in connection with this matter is that, while the condemnation would be at no cost to the District, the enhancement to the property in this immediate neighborhood would increase the taxes in no small amount.

Spring Road, from Georgia Avenue to Twentieth Street, is another highway of great importance, and this office has previously recommended this condemnation. The acquisition of the land for the extension of this street some time in advance of its physical improvement would be of great benefit to the property

in this neighborhood, and a personal inspection of the conditions on the ground will forceably convince one that this is a very important matter. The development of property is being retarded and improvements have gone beyond this section, leaving a belt along this proposed street in a very unsightly and unsatisfactory condition. The grades should be established so that the filling of private land could be made to conform to the new street, and thus eliminate a very serious menace to the health of this community.

Thirteenth Street should be extended from Spring Road to Colorado Avenue. A large part of this street has already been dedicated by various property owners, and it is only fair to those who have already dedicated to have it

opened through to the city.

There are also other streets that might very properly be extended.

An investigation of the street extensions already made will show that they have been of great benefit to the sections through which they pass, and in all cases the increased taxation due to the improvement has been a source of great

revenue to the District.

I have only to refer you to such condemnation cases as Eleventh Street north of Florida Avenue, Sixteenth Street north of Florida Avenue, and Rhode Island Avenue in order that you might get some idea of the importance of these street extensions to the District. Washington City has grown beyond its original Federal limits, largely on account of the extension of streets either by condemnation or dedication. The result has been that what was originally the boundary of the city only remains now as an imaginary line, and a new Washington of modern homes is coincident with the limits of the District of Columbia.

#### PARKS.

The last two District appropriation acts contained an appropriation of \$25,000 for the acquisition of small parks at the intersection of streets outside of the limits of the original city. In this connection eight small triangles were selected, and are now in process of condemnation. This will about use the first \$25,000. There have been no selections made for the second appropriation.

In this connection I wish to call your attention to the item in the sundry civil appropriation bill for the year ending June 30, 1915, restricting the commissioners to acquiring parks only where they are entirely surrounded by streets. This prevents the commissioners from acquiring three of the eight already selected, namely, in square 2594, square 2841, and square 3353. It also prevents the commissioners from acquiring others that would be very

desirable. This amendment to the law should be changed

Steps should also be taken by the commissioners to acquire Piney Branch. Parkway running northeasterly from Sixteenth Street and Piney Branch. This land is increasing rapidly in value, and much of the natural beauty, which especially adapts it for park purposes, is being destroyed. This park is recommended by the park commission in their report of 1902; it has also been previously recommended by a former board of commissioners. 'To a casual observer it would appear that some action should be taken at once to prevent the destruction of this natural park and to prevent it from becoming a dump and a blight to this section of the District.

All are familiar with the efforts made by the citizens of the District and the United States to acquire Rock Creek Valley from the Zoological Park to the Potomac Park, so that a great nuisance could be eliminated. It is only a question of time when Piney Branch Valley will be in a similar condition and the same great unsanitary dump as Rock Creek Valley.

## RENO SUBDIVISION.

In 1869 the subdivision of Reno was made, containing about 50 acres, and situate just north of Tenleytown. This subdivision has streets with a width of only 33 feet, and is entirely out of harmony with the highway plan. It is on an elevation of about 420 feet, being the highest point in the District of Columbia, and one of the most beautiful locations in the District; but, on account of its very narrow and bad streets, it has not developed like the surrounding country, and is a hindrance to the growth of this section, preventing the extension of streets based on the highway plan and retarding general development. Something should be done to eliminate this subdivision and to resubdivide it in accordance with the highway plan, as it is practically surrounded by streets already publicly owned. Land within this subdivision is probably worth only

5 cents per square foot, while much of the land in this vicinity is worth 50 cents. This shows more forceably than any argument the necessity for the correction of this subdivision. The title to the lots in this subdivision is in many small owners, and it is not believed that anyone but the Government could handle the situation. While it might be somewhat difficult and the action to be taken a little drastic, it is believed the only way to correct this condition would be by extending these streets in accordance with the highway plan by condemnation, and to acquire the lots remaining and resubdivide them into desirable building lots and sell them. This would clear up a very objectionable locality, and at the same time it is believed it could be accomplished without expense and would in the end add revenue from the taxes.

#### SURVEYS OF OLD SUBDIVISIONS.

The appropriation of \$2,500 for surveys of old subdivisions has been expended in making comprehensive surveys of the following subdivisions and property lines: Takoma Park; Harlem; Wisconsin Avenue property, R Street to Thirty-fifth Street; Petworth and Brightwood Parks. In these subdivisions there were 106 stones set marking the original block corners. Georgia Avenue between Rock Creek Church Road and the District line, Palisades of the Potomac, Woodley Road and Cathedral Avenue north of Woodley Park, Lincoln, Twining City, Square 2588. Two hundred monuments have been planted to mark permanently the lines of the subdivisions named, involving the work of a field party about two and one-half months in the field and about 85 days' office

This work will be of great advantage to the office in the surveys of indi-

vidual lots in any of the subdivisions named.

I wish to express my appreciation for the cooperation and support of the employees of this office during the past year, and to commend them for their universal courtesy to the public.

Very respectfully,

MELVIN C. HAZEN. Surveyor, District of Columbia.

Capt. MARK BROOKE. Corps of Engineers, United States Army, Assistant Engineer Commissioner, District of Columbia.

### STREET-EXTENSION DIVISION.

Washington, September 17, 1914.

SIR: I have the honor to submit herewith report of the operation of the street-extension division for the fiscal year ended June 30, 1914:

The general authority granted the Commissioners of the District of Columbia to open streets to conform with the plan of the permanent system of highways by item contained in the District appropriation bill for year ended June 30. 1914, approved March 4, 1913, and a new method of notice by publication provided for by item in urgent deficiency bill approved October 22, 1913. have greatly facilitated the acquisition of streets and alleys by condemnation. It has thus become possible to proceed with a number of important street extension and widening cases without waiting for special legislation.

Surveys requiring much time in both field and office have been made for the following street extension and widening projects: Calvert Street and Cleveland Avenue, Cathedral Avenue and Woodley Road, opening First Street and a minor street through Keating estate, Georgia Avenue from Rock Creek Church Road to District line. New Hampshire Avenue from Petworth to District line. Spring

Road and Perry Place.

Surveys for condemnation of parts of the Anacostia River frontage have been made where the United States Engineer's Office desired to proceed with reclamation in advance of acquisition of the entire river front for park purposes.

Survey and plats have been made for addition to the Zoological Park, a condemnation proceeding by the United States.

Submitted herewith is a table showing action taken on all condemnation cases filed during the year, and action on cases previously filed where such cases were not finally disposed of prior to July 1, 1913. J. B. SHINN.

Very respectfully,

Assistant Surveyor, District of Columbia.

The SURVEYOR.

Condemnation Cases.
STREET EXTENSIONS AND PARKS.

T. Constitution of the Con	Court	_				Verdiot.	liot.	Annual Control
Location,	docket No.	No.	Act approved.	case med.	Verdict nied.	Damages.	Benefits.	Action on verdict.
Minnesota Avenue, Pennsylvania Avenue to	8	282	Feb. 25, 1909	May 22, 1900				Postponed indefinitely subject to notice,
Sheriff Road, Minor Street, square 2895.				May 31, 1912	Mar. 6, 1914	\$4,214.88	£, 571.94	Oct. 18, 1912. Confirmed Apr. 17, 1914.
Road along Anacosta River.	1 3 E		May 10, 1910	170 May 10, 1910 Nov. 27, 1912		2, 234. 20	2,027.73	Order dismissing proceeding Apr. 10, 1914;
Establishment of building-restriction line, south	1050			qp	op			spread taken by District of Columnia. Postponed indefinitely.
both between Thirteenth and Fourteenth								
Establishment of building-restriction line, Co-	1063		Jan.	Jan. 25, 1913	•			Do.
and Fifteenth Streets.  Extension Rock Creek Drive.	1901	Ŕ	June 26, 1912	201 June 26, 1912 Apr. 30, 1913	000000000000000000000000000000000000000			Case dismissed Dec. 22, 1913; appeal by
Forts Davis and Dupont and Alabama Avenue. Extension of Western Avenue.	1062	25	do 2, 1913	do d	Apr. 22, 1914 Jan. 28, 1914	38,067.45	1,757.60	District of Columbia. Confirmed May 26, 1914. Confirmed Mar. 11, 1914.
Establishment of building line on south side Lanier Place between Adams Mill Road and				July 9, 1913	Nov. 19, 1913	9,669.80	10, 077.20	Confirmed Jan. 12, 1914.
Ontario Road.  Extension of New Hampshire Avenue.  Anacostia River Park, squares south of 1117,	2000	£\$	Mar. 3, 1913 Mar. 4, 1913	July 14, 1913 July 16, 1913	June 22, 1914 Jan. 16, 1914	20,000.00		Confirmed Jan. 28, 1914.
Minor Street, square 5805.  Parks: Squares 2500, 2564, west of 2075, 2841.	1071		Mar. 4, 1913	435 Mar. 4, 1913 Nov. 1, 1913	Feb. 20, 1914	2,500.00	2,906.31	Confirmed Apr. 1, 1914. Cause dismissed by attorney for District
3009, 3532, 3353, 5607. Highway and park along Anacostia River, par-	1078	35	do	do	June 19, 1914			of Columbia Apr. 1, 1914
cels 210, 211, 211, 213, 224, Extension Kane Place, equare 5155. Extension Shannon Place, equare 578				Jan. 27, 1914 do	Mar. 24, 1914 Mar. 25, 1914	506.90	820.60	Confirmed May 21, 1914, Do.
Extension Ofrard Street, square 2669. Parks: Squares 2560, 2594, west of 2675, 2841, 3009,	1098	435	Mar. 4, 1913	435 Mar. 4, 1913 Apr. 1, 1914				
Medison Street from Fourteenth Street to Colo-	1099		,	do	- op	•	••••••	
Extension Second Street and V Street NE.			•	Apr. 1, 1914	1100			

-		
:		
	Apr. 3, 1914 June 29, 1914  do	
фо	1102 Apr. 3,1914 June 29,1914 (1019 1107 Apr. 21,1914 (1019 1110 Apr. 21,1914	
	1102 Apr. 3 1103	
<u> </u>		
1011		
Buchanan Street, Piney Branch Road to Ave. 1101 do	Temyson Street through parcel 49/21. White Place SE. Twenty-filt Street ear. Widening Benning Road. Widening Georgia Avanue. Sixteenth and Girard Streets NE.	

# Condemnation Cases-Continued.

#### ALLEYS.

•	Court			Verd	dict	
Location.	docket No.	Case filed.	Verdict filed.	Damages.	Benefits.	Action on verdict.
Square : 615.  Square 2621.  Square 2621.  Square 2515.  Square 2592.  Square 957.  Square 2537.  Square 1045.  Square 1045.  Square 1007.  Square 3233.  Square 2841.  Square 1077.  Square 5251.  Square 522.  Square 522.	866 1006 1031 1043 1051 1056 1057 1085 1087 1088 1099 1094 1112 1113	Mar. 22,1910 Feb. 6,1912 May 10,1912 June 24,1912 Dec. 10,1912 Feb. 5,1913 Feb. 7,1913 Jan. 27,1914dodofeb. 2,1914 June 30,1914dododododododo	Feb. 21, 1914 Mar. 19, 1914 Mar. 11, 1914 Mar. 23, 1914 June 29, 1914 May 25, 1914 May 25, 1914	\$2,580.50 1,803.37 1,194.65 774.86	\$2,933.15 2,209.65 1,617.55 1,047.10 	Indefinitely continued. Do. Confirmed Apr. 17, 1914. Confirmed May 21, 1914. Confirmed Apr. 17, 1914. Indefinitely continued. Confirmed May 21, 1914.  Confirmed June 30, 1914. Do.

## REPORT OF THE SUPERINTENDENT OF TREES AND PARKINGS.

# WASHINGTON, D. C., September 5, 1914.

SIE: I have the honor to submit my twenty-ninth annual report, dealing with the operations of the trees and parkings office for the fiscal year ended June 30, 1914.

#### PLANTING.

The planting of young trees on recently improved streets to extend the system and the filling of existing vacancies in the established lines shows a decided decrease because of the great many trees blown down throughout the city by one of the severest storms that ever visited this section. The great amount of money required to clean up the débris prevented extensive preparation of tree holes for the planting during the fall and spring seasons, the proper time for this work. Two thousand two hundred and eighty-seven trees were transplanted from the nurseries to their permanent positions on the streets, a decrease of 2.284 trees from last year's record.

The planting of young trees continues to be a costly item, in view of the existing high cost of labor and materials and the necessity for longer hauls due to the rapid growth of the city, especially the replacing of trees in scattered locations.

Two thousand one hundred and ninety-four of the total number planted were set at the curb line, 53 in the public parking (4 of which were planted in the central parking on Fourteenth Street NW., north of Kennedy Street, to replace those that died), 3 in school grounds, 4 in playgrounds, and 28 in the grounds of the Anacostia pumping station.

#### TREES PLANTED.

Fal! season.		Spring season.	
ElmsGingkos Lindeus Maples: Norway Silver	63 59 35 272 4	Elms Gingkos Lindens Maples: Norway Silver	228 28
SugarOaks: PinRedSycamores	570 116 202	SugarOaks: PinRedSycamores	134 141 58 95
Total	1, 443	Grand total	2, 287

#### NURSERIES.

Coordinate with tree-planting work, a large number of seedlings of various kinds, as herein enumerated, were transplanted from seed beds to nursery rows at the E Street nursery. This work shows a decrease of 1.750 less than the corresponding period last year. No seedlings were transferred to the nursery rows at the Georgia Avenue nursery. These trees will be ready for street planting in about four years. In addition the nurseries are fully stocked with seedlings in beds, which are coming on to take the places of those transferred to their permanent positions on the streets.

It was found practicable to purchase 1,000 Vermont sugar maple and 1,000 Norway maple seedlings (imported stock) this spring, and they have been piaced in temporary rows, but will be transferred to the nursery rows next spring.

These seedlings are doing very nicely up to the present time.

The following table shows the number of seedlings transferred from seed beds to the nursery rows:

ElmsGingkos	262 431
Lindens	504
Maples:	
Norway	
Sycamore	316
Oaks:	
Pin	717
Red	2, 035
· -	
Total	5, 590

The shops at the E Street nursery are well equipped for the construction of wooden tree boxes, and the cost of making the same has been reduced considerably since this shop has been in operation.

## TRIMMING.

Little progress was made upon the general trimming of street trees, principally because of the severe storm that visited this city the last part of July, 1913, when the trees were heavy with foliage, and many trees at the time were either blown down or so badly broken that their removal was necessary, while many others had to be trimmed to insure future shape, a great many remaining at this time in need of similar treatment.

The storm referred to taxed our force to the utmost, as it required the covering of practically the entire tree-planted district. A great many small trees which had become loosened had to be restaked, strapped, and braced, and the same would have been destroyed in many cases except for prompt attention.

The streets being blocked in the northwest and southwest sections, and in many cases trees lying on houses, the work of relieving these conditions had to be pushed as rapidly as possible, and a great amount of money was expended for extra labor and teams to meet this emergency.

I would state, however, the damage from this storm was not as great in the northeast and southeast sections where the old silver maples had been severely trimmed (topped off) a few years ago. The silver maples in the northwest and southwest sections should receive similar treatment as rapidly as funds can be spared for the purpose. A great many individual requests for the trimming of trees throughout the city were received, especially the shaping of trees that had been disfigured by the storms, and these were given prompt treatment and at the same time any others in the immediate vicinity, requiring similar treatment were given attention, thereby preventing another trip to the same locality.

## BEMOVING.

The following table shows the kinds and number of trees removed during the year. Careful attention is always given to removal requests, and many growths are saved each year by suggested changes in the location of driveways, vaults, etc. In the cases of dead trees removed, the table gives the causes of their deaths as accurately as can be ascertained. Attention is again

called to the fact that a number of trees are destroyed each year by the escape of illuminating gas, but the gas companies are giving leaks attention promptly, and it is believed that a number of trees have been saved because of this prompt treetment.

# Statement of trees removed during the year.

Ailanthus	5	Oaks:	
Althea	ě	Black	5
Arbor vitæ	1	Pin	88
A -1-	12	Spanish water	.3
	1	WW79 04	
Black walnut			14
Catalpa	20	Red	83
Cedar	8	Orange, Osage	3
Cherry	2	Pear	3
Elm	82	Pine	1
Gingkos	14	Poplars:	
Horse chestnut	3	Aspen	26
Hickory	1	Athenian	20
Linden	98	Balsam	-š
	68		
Locust	08	Carolina	511
Maples:		Tulip	25
Norway	218	Lombardy	46
Red	14	Varigated leaf	1
Silver	617	Turkestan	2
Sugar	130	Sycamore	224
Scarlet	1	Willow, weeping	1
I	i	Willow, weeping	
Sycamore		60 A - 3	<u> </u>
Mulberry, paper	5	Total	2, 514
Negundo	143		

# Causes of removals or deaths.

Inferior and condemned varieties	4 5 860 18

Of the dead trees included in the above, it was ascertained that 95 were destroyed by illuminating gas, 48 by horse bites, 148 by drought, 11 by salt water. 73 by abnormal moisture supply, 43 by the mutiliation of roots, 10 by being girdled, 25 by being filled around, 2 by frost blight, 11 by insects. The remaining were unexplained.

	•	
Trees at the	curb removed	2, 197
	parkings removed	
Trees in the	sidewalk removed	87
	ool grounds removed	
	adways removed	
	eys removed	
	vate property	
	_	

Total\_\_\_\_\_\_\_2, 514

## SPBATING.

1. Leaf-cating insects.—The spraying of the city trees has become an annual necessity, and during the month of July of the last fiscal year it was found necessary to spray the trees infested with the fall webworm and the tussock moth, two of the worst midsummer enemies to shade trees. It was also found necessary to burn, with hot blast torches, the entire northeast section between

Bast Capitol Street and Florida Avenue, and North Capitol Street and Fifteenth Street for the destruction of egg masses on the trunks, and in that way prevent the hatching out of a great many insects that would have infested the trees later.

Early in May of this year the elms throughout the city were sprayed with arsenate of lead for the destruction of the elm-leaf beetle. The last part of May the fall webworm appeared on the lindens, Norway and silver maples, sycamores, and other varieties and spraying operations were resumed.

During the month of June all the trees throughout the city were severely infested with insects, and it was necessary to continue spraying all through the month. It was, however, observed that the trees that were sprayed in the early spring were not attacked during the month of June. It is the intention of this office to spray all the trees on the streets in the early spring as soon as the foliage has obtained normal size, and in this way poison their food supply before they make their appearance.

The following table shows the extent of spraying for leaf-eating insects during

the year:	
Ash	24
Catalpa	29
Kilms	9, 850
Lindens	6, 827
Locust, honey.	102
Maples:	
Norway	3. 424
	1
Silver	2, 890
Sugar	
Sycamore	15
Negundo	47
Oaks, pin	360
Poplars, tulip	114
Sycamore	4, 016
Others	525
•	
Total	28, 321

Unit cost of spraying (labor and materials), \$0.073.

2. Scale insects.—Early in March, when the trees were still dormant, this office sprayed trees with lime sulphur for the "obscure scale," "Erlococcus quercus," and elm-tree scale. The scale insects are very small and live under a scale that forms over them, and in order to reach the insect and kill it the poison must penetrate this protection. While this treatment can be used during the summer, it can be carried on to better advantage after the foliage is off the trees, as very much less liquid is required, and the spraying much more expeditiously and thoroughly done. While the effect of this spraying can not be determined for some time, this office feels sure that with subsequent application of the solution satisfactory results will be obtained.

The following table shows the extent of spraying with lime sulphur for the

acale insect:

Obscure scale, oaks, pin	90
<del>-</del>	

Unit cost of spraying with lime sulphur for scale insects (labor and ma-

In addition to the above treatment, the following small trees were treated with kerosene emulsion for the destruction of the obscure scale, the same being applied with brushes.

Oaks: Red		F	46
Pin	1,	, 8	518
Total	2,	, (	)64

Unit cost of applying kerosene emulsion with brushes (labor and materials), \$0.087.

Total number of trees sprayed during the year\_\_\_\_\_\_ 28, 773

Total number of trees treated for insects by applying with brushes\_\_\_\_ 2, 064

In addition to the above treatment for insects the egg masses were burned from the trees in the northeast section; also a great many affected branches were clipped off.

The excellent results obtained in the work of spraying the street trees of Washington may be attributed to the effective solutions used and the efficiency of the equipment and men engaged on that work.

#### CEMENTING.

During the first half of the fiscal year this office gave attention to the cementing of cavities in the trunks and limbs of trees, but the last half of the year this important work had to be discontinued because of the lack of funds and other more important work, especially the spraying of trees throughout the city.

This office, however, realizes that this is a very important branch of work. Because of the treatment rendered, the life of a great many trees are prolonged, and if allowed to stand without any attention, in a short time would be in such a decayed condition that their removal would become a matter of necessity.

The following table gives the number and kinds of trees cemented:

Elm Linden	
Maple, NorwaySycamore	
Total	71
Cost of laborCost of materials	
Total	202. 01

Unit cost of cementing (labor and materials), \$2.845.

### CULTIVATING.

The usual amount of cultivation of young trees was performed during the year. This work is absolutely necessary to insure good growth in young specimens, allowing them to derive the fullest benefits from rainfall.

Too much stress can not be laid upon the importance of cultivation, the full value of which is not generally appreciated. This cultivation is not only beneficial to the young trees, but also destroys a rank growth of weeds that would otherwise spring up around them, and the same would be unsightly. The keeping of the soil around trees cultivated and free from weeds is one of the most important aids to their growth. The keeping of the soil loose allows air to reach the roots, renders more available the plant food the soil contains, and also prevents the rapid evaporation of moisture.

### MOWING.

Many uninclosed public parkings were mowed during the year, the necessity being recognized to rid the city of as many weeds as possible. Attention was also given to the maintenance and mowing of grass in front of the District Building, Union Station, Center Market, Ashmead Place, public-convenience station at Seventh Street and Pennsylvania Avenue NW., the parking around Washington Circle, Seventh and Louisiana Avenue NW., the slope at Twenty-second and Decatur Streets NW., and the park areas at Eleventh Street and Massachusetts Avenue NW.

In addition to the care of the above parkings, I would respectfully invite attention to the improvement of the central islands of the Union Station Plaza, which were improved this spring by the removal of the crushed stone and the filling in of same with fine soil, seeding, and sodding; also the improvement at the Quarry Road entrance to Zoo Park.

#### TREE BOXES REMOVED.

During the fiscal year about 1,200 old tree boxes were removed, as the trees were large enough to do without their support, and in some instances they were in such dilapidated condition that they gave the street an unsightly appearance.

#### REGULATION OF TERRACES.

The regulation of terraces throughout the city is proceeding satisfactorily, and in the recently built-up sections of the city the uniformity in their heights presents a pleasing appearance. Six hundred and eighty-seven applications were received during the year, and in determining action thereon approximately 500 inspections were made. A majority of the applications received are for the outlying districts and are widely scattered. If the office was equipped with an automobile for these and other inspections, much valuable time would be saved, the office would cease to be a subject of criticism, and the efficiency of the service would be much improved.

A brief summary of the work performed by the office is as follows:

## Comparative statement.

	1913	1914
Writing and execution of inspections.	597	599
Additional terrace inspections.  Issuance and execution of work orders	550	500
Issuance and execution of work orders	731	683
Locations visited in executing same	2,892	3, 192
Official files acted on		552
Writing of indorsements thereon	750	786
writing of indorsements dereon		
Requests to the surface division for paving, etc	31	29
Pay rous and special vouchers forwarded	50	68
Requisitions for supplies, repairs, etc	125	121
Transfer of appropriation vouchors	3	17
Supply youthers approved recorded etc	227	236
Supply vouchers approved, recorded, etc: Superintendent's recommendations originating here.	95	86
Gas reports forwarded	19	i i
I another thereon	100	81
Locations thereon Letters mailed to private individuals		
Letters mailed to private individuals	321	514
Car tickets and stamp reports forwarded	24	
Replies to communications by post card	60	110
Preparation and submission of property returns		
Coping permits issued 1	61	172

<sup>&</sup>lt;sup>1</sup> This office assumed the duty of issuing permits on Apr. 17, 1913, when the permit clerk was relieved of the work.

I would respectfully invite attention to the increase in the amount of clerical work the office was called upon to perform during the past fiscal year.

# SUM MARY.

Trees in streets, parkings, sidewalks, school yards, and playgrounds at the close of fiscal year 1913	102, 559
Net decrease during 1914	216
Trees in streets, parkings, sidewalks, school grounds, and playgrounds at the close of the fiscal year 1914	102, 343
Curb trees on streets at close of fiscal year 1913	
Curb trees on streets at close of fiscal year 1914	101, 912
Mileage of trees at close of fiscal year 1913No change in the mileage of trees, fiscal year 1914.	
Mileage of tree-planted streets, close of 1913	<sup>a</sup> 289. 52

<sup>&</sup>lt;sup>1</sup> In addition to the number removed above, 11 were removed from alleys, roadways, and private property, but did not diminish number included in official count, <sup>8</sup> Mileage is figured on the basis of 352 trees per mile.

# EXPENDITURES.

[Streets, District of Columbia, 1914, parking commission.]	
Clerical and inspection work	\$1, 886. 01
Military duty with militia	10.00
Storm damage	8, 124. 10
Cultivating young trees	1, 194. 04
Improvement, care, and mowing of parkings	1, 329. 59
Miscellaneous repairs to boxes, etc.	811. 52
Maintenance of nurseries and shops (making 3.000 boxes)	3, 046. 57
Removing dead, decayed, and dangerous trees	2, 654, 39 3, 621, 44
Planting trees (including lifting trees in nursery and digging tree holes)	5, 032, 59
Watering recently planted trees	147. 50
Cementing cavities, treating wounds, tree surgery	170.38
Maintenance of yard (including shoeing horses, repairs to	
wagons, repairs to tools and the sharpening of same, etc Extermination of insects—	2, 034. 99
Clipping off caterpillar nests	14. 50
Applying kerosene emulsion	75. 77
Burning egg masses of the tussock moth	83. 38
Spraying with lime sulphur Spraying with arsenate of lead	23. 56 905. 39
Hauling wood for the asphalt plant	5. 25
Cleaning snow from the streets.	33. 25
Filling low tree spaces	
Removing old tree boxes	
Labor Day payments to laborers	
Total	31, 448. 59
Materials, supplies, miscellaneous repairs, etc.:	
Buggy and wagon findings and repairs	351. 49
Electric current	44. 10
Fertilizer and grass seed	143. 07
Forage	2, 736. 00
Stationery, printing, and office supplies	152. 84
Leather strapsLumber for tree boxes	548.75
Lumber, miscellaneous purposes	3, 340. 79
Wire, bolts, tin, nails, screws, etc.	59. <b>73</b> 133. 71
Paints, oils, and glass	103. 23
Rope, twine, etc.	127.71
Soil	218.58
Stable and blacksmith supplies	50.04
Tools and agricultural implements	504.68
Telephone calls	. 55
Car tickets	10.00
Fuel	71.04
DrugsCement	1. 34 19. 65
Roofing felt	2. 16
Pine tar	1. 20
Auto-truck accessories, repairs, etc.	264. 49
Gasoline	260. 62
Iron, steel, horseshoes, and pads	200.77
Spraying-machine accessories, etc.	87. 25
Arsenate of lead	1, 178. 00
Lime sulphurSeedlings purchased (Norway and sugar maple)	47.00
Seedlings purchased (Norway and sugar maple)	42, 50 14, 63
Dunatico	7.57.00
Total.	10, 714. 92

Charges against appropriation:  Material for Climax Street hydrant Repairs to auto truck Repairs to spraying machine Repairs to stables and sheds Paving tree spaces Repairs to service pipe	289. 64 12. 79 220. 50 430. 71
Total	960. 85
By appropriation, fiscal year 1914	
Total	43, 151. 55
Labor Materials Charges against appropriation To balance appropriation unexpended	10, 714. 92 960. 85
	43, 151, 55

# Expenditures from miscellaneous appropriations.

## {Exclusive of parking commission.}

	Direct charge.	Through repay- ment.
Miscellaneous trust-fund deposits.  Electrical department, District of Columbia, 1914, lighting.  Public schools, District of Columbia, 1914, repairs to buildings, etc.  Construction of suburban roads and streets, District of Columbia, 1914, Illinois Ave-	11.63	<b>8334. 37</b>
nue and Kennedy Street.  Quarry Road entrance to Zoo Park.  Elimination of grade crossings, District of Columbia, improvement of Plaza.  Improvement and repairs, District of Columbia, 1914:  Assessment and permit work.	27. 82 1,758. 57 1,713. 60	90, 82 72, 50
Sidewalks and curbs.  Repairs to streets  Grading streets, alleys, and roads.  Water department. District of Columbia, 1914, high service.	23, 88 28, 49 37, 56	9, 75 52, 36
Maintenance, Municipal Building, District of Columbia, 1914.  Street: District of Columbia, 1914, cleaning, etc.  Unpaid labor returned to appropriation.  Total.		61.75

Sums expended during the year for employment of per diem employees, paid from appropriation "streets, District of Columbia, 1914, parking commission."

Sums expended during the year for the purchase and maintenance of horses. parts, and wagons, together with amounts paid for single and double wagons and ploto-team hire.

[These items included in material list.]

\$3, 338. 30 Horses, forage, wagons, and miscellaneous equipment and repairs. Single wagon hire, 8641 days, at \$2.25 per day\_\_\_\_\_ \$1,944.57 Double wagon hire, 1,316 days, at \$4 per day..... 5, 264. 00 3-horse plow team, 15% days, at \$6 per day\_\_\_\_\_

> 7, 303.07 10, 641, 37

Respectfully submitted.

T. LANHAM, Superintendent of Trees and Parkings.

Capt. MARK BROOKE. Corps of Engineers, United States Army, Assistant to the Engineer Commissioner, District of Columbia.

## REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT.

WASHINGTON, September 16, 1914.

SIB: I submit the following report of operations of the water department for

the fiscal year ending June 30, 1914:

The most notable result of our year's work is a still further decrease in the consumption of water, not only in per capita, but in total mean daily rate. The changes in these rates since 1896 are shown clearly on the accompanying disgram. Radical measures to curtail waste were taken in 1905, when the mean daily rate had reached 69,000,000 gallons and the per capita about 227 gallons These measures, as set forth in detail in preceding reports, consisted in the extensive installation of meters, systematic underground surveys to locate and remedy leaks, and careful house inspection.

The great need of such steps is evident when it is remembered that the safe mean rate of flow in the only conduit supplying the city is about 65,000,000 gallons daily. This mean rate was exceeded in 1905, 1906, and 1907, and was

reached in 1908. Up to 1895 it was increasing rapidly.

Since 1905 there has been an almost continuous decrease in the amount of water used by the city, until during the past fiscal year the mean daily rate was

about 54,000,000 gallons, and the per capita rate 152 gallons.

The decrease in per capita rate since 1905—227 to 152, or 75 gallons—is 33 per cent. Assuming that the per capita can be finally reduced to 130 gallonsa further reduction of 22 gallons, or 141 per cent—and that the population increases at about the same rate as in the past, the mean daily consumption would equal the safe mean capacity of the conduit in 1930, when the population of the District would be about 500,000.

Past experience seems to indicate that a per capita of not more than 130 may be reached by a vigorous continuance of waste-preventive measures. Steps certainly should be taken to insure the availability of an additional supply not later than 1930. The importance of this can scarcely be exaggerated.

A detailed statement of the financial transactions of the department will be found in the report of Division F following. This shows that from all sources there was available for the needs of the department during the year the sum of \$823,306.69. The cash expenditures for the year amounted to \$794,952.16 and outstanding net liabilities on June 30, 1914, to \$32,497.90, leaving a working balance of \$946.63.

The total cost of work done by the department during the year, as distinguished from the cash expenditures (the difference being due to increased material in stores) was \$766,354.06, of which about 52 per cent was for new work in extension of plant, 27 per cent for operation, and the balance for repairs and

replacements.

The total length of mains of all sizes laid during the year was 98,460 feet, or 18.6 miles, at a cost of \$191,303.87. This brings the total length of mains in the distribution system up to 3,120,406 feet, or 591 miles.

The next highest single item of cost was the installation of meters, \$103,610.20. During the year there were installed 8,555 meters, bringing the total number in use on June 30 up to 42.161.

The total number of services in use is 66,914, of which 24,753, or 37 per cent. remain unmetered; assuming 2,000 additional services and the installation of

8,000 meters per year, the metering of the city will be completed in the summer of 1918. The department hopes to do better than this.

The net result of the year's work by Division B—underground surveys for the detection of leaks and waste—was the stopping of underground waste aggregating 2,552,000 gallons a day. Particular attention is invited to the detailed

report by Mr. Lanham, in charge of this work.

During the year our systems of storekeeping, property accountability, and cost keeping were brought up to date, and are now believed to be highly efficient. All portable property is cared for in well-equipped storerooms and yards, perpetual inventories showing not only quantity balance, but money value, are kept constantly up to date, and the personal responsibility of employees is complete. A daily statement is submitted showing the value of tools and material on hand at the close of business each day. These values at the close of the year were, for tools and equipment, \$485.556.01; miscellaneous supplies, \$162,476.32, or a total accountability of \$848,032.38. Attention is invited to the report of Mr. Riggs, in charge of stores and accounts, Division F, following.

An important event of the year was the completion and putting into service of the Anacostia pumping station, and consequent extension of water service to the higher land beyond the Eastern Branch and an increase of pressures in Congress higher land beyond the Eastern Branch and an increase of pressures in Congress Heights and vicinity. There are four pumps in this station, all of the triplex, single acting, outside-packed-plunger type, two of 1,200 gallons per minute capacity, each supplying the first high-service area, between 70 and 170 feet elevation, and two of 600 gallons per minute each capacity for the second high service, between elevations 170 and 280 feet. The pumps are driven by two 50-horsepower internal-combustion oil engines, so arranged that any pump may be driven by either engine. Fuel oil in tank-car lots is bought at 5.93 cents per Up to the present time the mean total pumpage by the station has been 316.000 gallons daily. Three water towers, each with a total capacity of 140,000 gallons, are maintained in connection with this station.

The laying of new mains and appurtenances and nearly all outside construction work was done by Division D, under the direct supervision of Asst. Engineer J. S. Garland. Probably the most important single project completed was a reinforcing trunk main laid in the low-service area north and east of Capitol Hill. This consisted of about 4,800 feet of 30-inch and 4,700 feet of 24-inch main, and completed a loop much needed to insure uninterrupted service in the outlying portions of the gravity service and throughout Anacostia.

Another project of importance completed during the year was the extension of water service to the Home for the Aged and Infirm at Blue Plains. This necessitated the laying of 7.600 feet of 8-iuch main, reaching practically to the southernmost point of the District, and furnished much-needed relief.

Other activities of this division included surveys for and the laying of mains and appurtenances as enumerated in the accompanying table; the hauling of over 7,000 tons of cast-iron pipe and a very large amount of miscellaneous freight from the railroad terminals; the inspecting, cleaning, and testing of \$,130 street valves in place; the placing of 1,890 cast-iron number plates on valve casings; 45,571 fire hydrant inspections; the establishment and isolation of the first and second high-service areas in Anacostia; the cleaning of Brightwood Reservoir three times and of Reno Reservoir four times; the installation of a second 48-inch Venturi meter on Fourth Street; the laying of a 4-inch wrought-iron pipe 2,853 feet long for the conveyance of fuel oil from the railrond siding to the Anacostia pumping station; supervision of erection of 8-foot woven-wire fences around department property at the District and Anacostia pumping stations and the tower yard at Tenth Place and Alabama Avenue SE.; supervision of leak repair gangs, which handled 1,784 leaks during the year; and a very large amount of miscellaneous work as set forth in the division and subdivision reports on file. The work of Division D, under Asst. Engineer Garland, is outlined above. Following are the detailed reports of work done by Divisions B, C, E, F, and G, as submitted by the respective heads of those divisions.

I wish to record my hearty appreciation of the excellent work done during the year by the employees of this department, and especially to the several heads of divisions and subdivisions.

The affairs of the department are in most excellent condition, chiefly due to the earnest effort and skillful work of these men.

W. A. MCFABLAND, Superintendent Water Department, District of Columbia.

Capt. R. G. POWELL.

Corps of Engineers, United States Army, Assistant to Engineer Commissioner, District of Columbia. Digitized by GOOGLE DIVISION B.—Report of pitometer surveys for the detection of waste.

Sib: Two million five hundred and fifty-two thousand gallons per day, underground leakage, detected and prevented, represents the results of the pitometer surveys for the fiscal year 1913-14, the eighth year of the pitometer service in the District of Columbia. This leakage was due to the usual sources, and was found scattered throughout the first high service, which was surveyed completely, excepting a small section east of the Anacostia River; two districts of the gravity service and about one-half of the second high service. A total of 452 individual leaks was found, giving an average of 5,600 gallons per day. This average leakage is much smaller than that found upon the first surveys in 1907 (see Statement A), the difference being due to several natural causes. These causes, in the order of importance, are the elimination of large leaks, which had probably been running for years before the inauguration of the pitometer service, the repeated surveys checking leaks practically at the time of their starting, and the reduction in the number of special investigations in the Federal buildings, etc., where large leaks and waste were previously found.

Throughout the year the increasing scarcity of leaks and waste was very noticeable, and the extremely low rates of flow detected in the various sections of mains introduced entirely new conditions to be overcome in the successful prosecution of the work. Heretofore, the flows have nearly always been of sufficiently large size to permit effective use of the aquaphone in the daytime, and the neglect of slightly imperfect isolations, but now, because of the traffic noises and the smallness of the flows under investigation, most of the aquaphone inspection has to be done at night, and as old valves and stopcocks seldom give perfect shut-offs, misleading indications are frequent, causing delay and some-times failure to properly account for suspicious flows. Also, in addition to these troubles, there is that of the continuous fluctuation in the rate of flow in the mains due to pressure changes. The effect of this can readily be appreciated when it is known that the change in the rate of flow, due to this cause, is frequently several times as great as the effect produced by the flows under investigation. The result of this state of affairs is that the ability of the operators is being taxed to a greater extent each year, and several, whose services were previously satisfactory, have been dismissed because of their inability to produce results under the new conditions. The personal element enters into the work of this division to a very great extent, but, due to the use of recording instruments and complete records, it has been reduced considerably during the last few years. Experiments are now being made to increase the sensitiveness of the pitometers, so that they may be used for reading small flows direct instead of by differences, and with pressure regulating valves on fire hydrants to control the flow and reduce fluctuation during tests. Any success along these lines will be of great assistance in making pitometer surveys an exact science.

For several years past it has been the practice, in laying out territory for the field men, to work the services in such order as to have available figures for compacison in both surveyed and unsurveyed territories. This has enabled us to show graphically conclusive evidence of results of the pitometer surveys. This practice was continued during the past year, and attention is invited to the chart B, submitted herewith. Examination of the diagram of the consumption in the gravity service will show that there has been a steady and remarkable decline in the water consumption of that service, the six years since July 1, 1908, showing a drop of 11.000.000 gallons in the mean daily rate. In that period the only year that showed any increase over the previous year was 1910-11, when no pitometer parties were working in the gravity service. weather of that year was such as to produce heavier consumption than normally, but should have had no more effect on the water consumption than the weather of 1911-12, which was also abnormal in the same direction. theless, the activity of the pitometer service in 1911-12 and in the successive years since made its impression upon the consumption, being aided, probably, to a considerable extent by the installation of meters, and during the last two years by abnormal weather in favor of low consumption. Since October 1. 1913, the consumption of the gravity service has been determined by Venturi meters on Fourth Street NW., instead of by figures from the filtration plant. These latter were undoubtedly too high, as no allowances were made for water used and spilled at that plant. The drop in the gravity service for last year, therefore, is due to some extent to that change in the method of determination. The dotted line on the diagram at this point is the estimated rate which the old method would have shown, and is the proper figure for use in gauging the effect

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of the surveys. The drop expected in the gravity service was less than that expected in the first high service, since only a portion was surveyed; hence the reduction indicated by this corrected figure more nearly conforms to the effect

anticipated.

In the first high-service consumption there was a steady increase each year until 1910–11, when an abrupt drop occurred coincident with the pitometer survey of that territory. This decrease happened at a time when the weather conditions were such as to produce an opposite effect, so that the drop in consumption was significant. The following year, however, when the weather was of the same general character and no surveys were made in this service, the sudden increase of over 1,000.000 gallons in the daily rate gives a fair idea of what might happen with adverse climatic conditions and no corrective measures. The decline in 1912–13 and in 1913–14 simply confirms the obvious conclusions of the previous years, showing the joint effect of corrective measures and favorable weather conditions.

Effective work is much more difficult in the second and third high services than in the lower services, because of the low velocities in the mains. This condition is due largely to the fact that all mains in these sections are of recent installation, when the practice called for larger sized mains than formerly, However, examination of the diagram for these services shows that the only years in which there was no increase in the consumption were when pitometer surveys were being made in the service affected. It will be noticed that there was an increase in the consumption in several years in spite of the pitometer surveys made during those years. This can be attributed to the fact that very little leakage was found in the portions surveyed and could not be expected to influence the total rate noticeably. These being metered services, the moral effect of the investigations is also practically zero. Determined efforts are being made to locate the causes of all night consumption in the second high service, and the effect of this will be seen on the consumption for next year. The third high service also will probably receive considerable attention during the coming year, because of the rapid rate of increase in its consumption. It is to be remembered, however, that practically all of the city's growth is occurring within the limits of the second and third high services, and we expect only to hold a reasonable per capita consumption while the total gradually increases with the population. The work in these services is the most interesting and most important at the present time, because the future operations of this division will be based almost entirely upon the results of what may be called experiments in the best methods of handling the metered residential territory. About one-half of the second high service was surveyed during the year, but other than giving the material results of the work, no further mention will be made in this report. However, a special report will be submitted upon the completion of the work in that section, giving in full detail all information concerning both present conditions and future possibilities.

The inspection of fixtures in all unmetered houses was continued throughout the year and resulted in our turning over to the water registrar's office about 1,600 cases where leaks were found. This represents 9.4 per cent of the total number of houses inspected and indicates that very satisfactory results are coming from this work, as the lowest percentage during any previous year was 14.1 per cent. Statement C shows these figures for six years back and gives an excellent idea of the steady and substantial progress made in this work. Of course it is only a question of a few years before the complete metering of all houses will eliminate this branch of our work, but in the meantime the saving

of water is undoubtedly being felt.

As a source of underground waste, from services have each year been the leaders, and last year was no exception. A total of 166 iron service pipes were found discharging through porous soil 924,000 gallons of water each day. Joints on mains follow as a close second, with 93 cases, wasting 596,700 gallons per day. The split lead and pewter services and broken wiped joints on lead services and on lead connection to Iron services are also blamable for a very heavy waste of water. A comparison of the relative importance of the various sources of leaks found each year since 1907 is embodied in statement D, herewith.

The largest individual leak found was a break on a 4-inch main, discharging 57.000 gallons per day. Considerable difficulty was experienced in locating this leak because of the fact that it was in a section of main that was not recorded on our plats. This case therefore not only shows the direct results of our work in saving water but the indirect results in the weeding out of errors in the maps of the department. Hundreds of feet of old unrecorded mains have been located

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since this division started work, in 1906, and during the past year approximately 200 feet of unrecorded 4-inch main was added to the total previously found.

While in the majority of cases where the pitometer tests indicate trouble flows can be heard or some other indication found to help locate the leak, during the past year a number of cases were handled where none of the usual methods were applicable, because of the absence of these customary indications. The leak of 57,000 gallons per day mentioned above was an example of such a case This being on an unrecorded main, it was obviously impracticable to sink test holes at random, and the leak was found only by the application of the process of elimination carried to a point of actual elimination of all known connections.

Special investigations for the detection and stoppage of water waste were made at the House of Representatives Office Building and the sewerage pumping station. These investigations were reported in detail in special reports dated June 30, 1914, and August 25, 1913, respectively. They resulted in the throttling of several small flows at the House Office Building, saving approximately 28.000 gallons per day, and the metering of all connections to condensers in the Sewerage Pumping Station, preventing careless waste of over 300,000 gallons per day. Under the head of special work should also be included a series of careful tests made to determine the accuracy of the pitometer as a means of determining pump slippage, and the measurement of mean daily and 24-hour rates of consumption at the Naval School of Hygiene, Naval Laboratory, Naval Hospital, and the National Museum, for the United States aqueduct officials to assist in the metering of these institutions. The work on slip indicators was covered fully in report of February 10, 1914, and the measurements of Federal buildings were submitted direct to the Aqueduct officials, copy of figures being submitted herewith in statement "E." This statement also includes a comparison of the quantities of water consumed in all metered Federal buildings before and after the installation of the meters. The averages since the meters were installed are based upon the weekly meter readings, and are perfectly fair figures, but pitom eter readings previous to the meter installation were necessarily of very short duration, and, therefore, subject to corrections allowances for season changes, etc. Making due allowance for these changes, however, the indications are that the moral effect of the meter installation has been good, resulting in reduced water consumption in the majority of cases.

Tests of trunk mains embraced most of the important lines in the gravity, first and third high services, and several in the second high service. There were 37 individual tests made on trunk mains during the year, flows totaling 299,500 gallons per day being detected. Investigation as to the source of flow in each case resulted in the detection of either underground leakage or flow inside of premises, with the exception of three instances, where no trace could be found of the cause of the flow. In these cases retests were made and showed zero. For further information upon condition of trunk mains, your attention is respectfully invited to statement "F" herewith.

Because of the changes which are constantly being made in the distribution system, both by extension of mains and alteration of water-service areas, it was found necessary during the year to install nine new permanent pitometer connections in order that all mains could be properly tested. This brings the total number now in service to 316 and gives us excellent facilities for quick and efficient work. Repairs to connections were made in eight cases, where old connections were inoperative or leaking. Repairs to connection in the old 8-luch standpipes were always accompanied by replacement of the standpipe with a valve casing.

Since November 24, 1913, no regular photographer was employed by this division, work previously performed by him being turned over to one of the clerks of this office. There was practically no work done during the year which required the services of an expert, so that by eliminating this position substantial economy was practiced. Statement "G," submitted herewith, giving results of the year's work, includes a summary showing that the photographic work was comprised principally of developing pitometer records and blue printing for this and other divisions of the department.

As was mentioned above, the greatest quantity of work was performed in the first high service, and the conditions there found indicate satisfactory progress toward the reduction of the per capita and night consumption to a minimum. The average per capita for the entire first high service, bused upon the station

figure of 16,400,000 gallons mean daily consumption and our latest population count, is 138 gallons daily. The average minimum night rate for the year was 62.3 per cent of the mean daily rate, based entirely upon figures taken from the pumping station log and engineer's reports.

The measurement of the total consumption of all of the first high districts

were made on 48 and 36 inch mains, where great care was necessary to read the very low velocities prevailing at night. The inaccuracy of the photographic recorders on velocities lower than one-half foot per second is well known, but until the past year no other instrument was available for this work. The introduction of a new type of recorder then gave us an opportunity to make accurate measurement of flows as low as one-third of a foot per second. This type of instrument was used in measuring all districts where the flows were below the limit of the photographic recorders, and as a result the night rates in these districts show a lower percentage than at any time previously. (See statement "H.") It is not believed that this abrupt change occurred during the past year, as the statement indicates, but rather that it had been gradually taking place, and failed to register upon the photographic charts. That our latest figures are the more accurate is indicated by their checking very closely with the average taken from pump displacement computations. Districts of the first high service worked during the year were "G," "I," "K," and "L," and statement "I," attached hereto, gives the mean daily and night rates of consumption and analyses of the night flow. Study of this statement will show that in most cases practically all of the flow detected on the subdivision tests was accounted for by leakage, flow within buildings, or legitimate consumption of horse foun-tains, sewer flush basins, etc. The discrepancy between the night rates of consumption found upon the preliminary measurement and upon the totaling of the various night subdivision tests is as yet only partially understood, but closer study will be given the situation upon future surveys, and it is hoped that valuable knowledge will be secured. When examining this statement, attention is invited to the somewhat heavy night flow into metered premises. As the first high service supplies an almost purely residential section, the use of water through meters between midnight and dawn gives an insight into what may be expected when the city is entirely metered. Surveys of gravity districts 'E" and "F" show the same general results as those in the first high service. Heavy flow, as yet not located in these districts, remains to be investigated and gives hope of substantial results accompanying future work. Use of water by Federal buildings is excessive in the gravity territory and invites investigation. Details of work in districts "E" and "F" are embodied in statement "I," herewith.

Surveys in the second high service are progressing slowly and satisfactorily, but as district measurements could not be made because of low flow in feeder mains, the real condition of this territory will not be known until work is complete and figures totaled for comparison with mean daily supply delivered to the entire area. Reference to statement "I" gives figures to date on districts "M," "N," and "O" in this service.

The program of work for the ensuing year includes, in addition to a complete survey of the gravity service, completion of survey of second high service and preliminary surveys of the third high service, a more thorough study of the use of water by Federal buildings, with a view toward making use of condensing water now running into sewers. Opportunities for saving water also present themselves in closing suction valves on idle pumps at the District pumping station and securing, if possible, the closure of all display fountains between the hours of 12 p. m. and 7 a. m. during the months they are in operation. Some action should also be taken toward giving municipal departments an incentive to restrict water waste. Several of these have been found guilty of wasting water to a serious degree, and some check should be placed upon them. The effect of installing meters is good, even though no charge is made for the water registered, and all buildings under the control of the commissioners should be metered. It does not seem that present conditions call for the payment for all water used by municipal institutions, however, but when water is being used for power purposes, resulting in decided economy to those institutions at the expense of the water department sometimes out of all proportion to the service rendered, it would certainly be an equitable arrangement to charge for the water so used.

Very respectfully submited.

PAUL LANHAM, Pitometer Operator.

#### SUPPLEMENTS.

- A. Underground leakage, 1907-1914, showing average per leak.
- B. Chart, effect of pitometer surveys. C. Results of house inspection, 1907-1914.
- D. Underground leakage, 1907-1914, showing sources and quantities.
- E. Comparative consumption of Government buildings before and after metering.
- G. Year's results, 1913–14.¹ G. Year's results, 1913–14. H. Measurements of permanent districts, gravity service, first high service,
- and second high service.

  I. Surveys of permanent districts, 1913-14, gravity service, first high service. ice, and second high service.

## A.—Underground leakage, 1907-1914, showing number, quantity, and average.

Year.	Number.	Quantity per day.	Average per leak per day.
1907-8	532 624	Gallons. 5, 604, 400 9, 560, 600 6, 364, 200 6, 921, 900 5, 115, 300 4, 195, 100 2, 552, 800	Gediens. 20,700 11,500 12,600 11,100 6,200 6,400 5,600
Seven years	4, 175	40, 314, 300	9, 700

## C.—Results, house inspection, 1907-1914.

Year.	Houses inspected.	Houses with defec- tive fix- tures.	Percent-
1907-8*. 1908-9. 1909-10. 1910-11. 1911-12. 1912-13. 1913-14.	27, 758 21, 642 21, 547 31, 289 26, 397 17, 039	4,621 3,305 3,262 4,943 3,725 1,603	16.6 15.2 15.1 15.7 14.1 9.4

### D.—Sources and daily quantities of underground leakage, 1907-1914.

Classes.	1907-8	190 <del>8-9</del>	1909–10	1910-11	1911-12	1912-13	1913-14
Abandoned taps	Gallons.	Gallons.	Gallons. 355, 300	Gallons. 178, 600	Gallons. 174, 200	Gallons. 180, 900	Gallons.
Iron services	2, 729, 000		2, 438, 000 1, 201, 900	1,508,900 1,237,600	2,329,800 976,700	1,988,800 394,000	924,000 471,000
Wiped joints Couplings.	827,000	5, 214, 000	710, 100 118, 700	666,700 182,900	438, 100 123, 700	282, 300 75, 600	237,000
Stopcocks	••••••		84,800	43, 300 42, 000	53, 500 10, 400	32,900 5,700	66, 900 16, 900 500
Joints on mains Broken mains	1,039,900 1,200,000	1,345,600 117,000	1,034,200 332,000	2, 562, 500 15, 900	746, 300 7, 000	962, 300	596, 800
Valves	23,500	62,000 737,000	89, 100	110, 900 176, 600	27, 100	103, 300 13, 200	62, 200 6, 800
Fire hydrants	174,000	45,500		19, 200	71,300 3,500	6,000 115,000	500
Public hydrants Unclassified	111,000	2, 039, 500		84, 200 97, 600	50, 200 103, 800	21,000 15,000	12,000 56,500
Total	5, 804, 400	9, 560, 600	6, 364, 100	6, 921, 900	5, 115, 600	4, 196, 000	2, 552, 800

1 Not transmitted.

2 No records.

# H.—Camparative consumption of Government buildings before and after metering.

•					
Buildings.	Before metering Photograph record measu ment (per da	ic in	ter meter- g—Meter ding (per day).		
Vaval Hospital, Naval School, Hygienic Laboratory.  overnment Printing Office	Gallone. 185, 600 1,523, 400 1,790, 100 106, 000 61, 600 199, 300 215, 000 1272, 600 99, 400		tory		165, 600 76, 400 1, 523, 400 1, 751, 000 1, 790, 100 616, 000 106, 000 815, 000 61, 600 97, 900 199, 300 160, 300 215, 000 178, 000 172, 600 240, 700
<sup>1</sup> Old and new buildings. <sup>2</sup> New	w building only.	•			
Service pipes inspected (metered 24,794)  Houses inspected  Houses with defective fixtures (9.4 per cent)  Number of notices served  Number of houses cut off  UNDERGROUND LEAKAGE.			_ 17, 039 _ 1, 608 _ 207		
UNDERGROUND LEARAGE.					
Class.	. N	umber.	Gallons daily.		
A bandoned services.  from services.  Lead services.  Wiped joints.  Couplings.  Stopcocks  Stopcocks  Street washers.  Joints on mains.  Broken mains.  Public hydrants.  Fire hydrants.  Unclassified.		8 166 74 49 28 16 1 93 2 4 1	101. 70 924, 00 471. 00 237, 00 66, 90 16, 90 596, 80 62, 20 6, 80 12, 00 56, 50		
Total		452	2, 552, 80		
PHOTOGRAPHIC WORK.  Number of blue prints made for division " E "  Number of blue prints made for division " B "  Number of photographic plates exposed			7 12		
Number of photographic prints made Number of pitometer records developed EXPENSES.					
Number of pitometer records developed			NE 907 A		

Total\_\_\_\_\_ 38, 613. 25

## H.—Measurements of permanent districts, gravity service.

District.	Fiscal year.	Date.	Mean, daily.	Minimum, night.	Ratio.	Per capita, delly.
			Gallons.	Gallons.	Per cent.	Gellens.
A	1910-11	May 13-18, 1911	8,369,800	6,458,400	77	
	1911-12 1912-13	May 29-June 4, 1912 Oct. 24-30, 1912	8, 458, 000 9, 668, 800	5,904,000 6,990,000	70 72	
B	1909-10	Aug. 20-26, 1909	3, 372, 800	2, 458, 800	73	=
<b>~~~</b>	1909-10	June 5-11, 1910	3, 195, 000	2, 199, 600	60	
	1910-11	June 5-11, 1910 Feb. 24-Mar. 2, 1911	3,001,900	1,974,200	66	
	1911-12	Apr. 28-May 4, 1912	3,826,800	2,900,600	76	
	1912-13 1913-14	Mar. 26-Apr. 1, 1913	2,606,000 3,897,000	1,848,600 2,692,000	71 69	16
C <b></b>	1909-10	May 3-9, 1914	3,637,800	3, 097, 800	85	167
V••••••	1910-11	Mar. 9-15, 1911	3,687,600	3,061,800	81	
	1911-12	Apr. 28-May 4, 1912	3,366,000	2,773,000	82	170
	1912-13	Apr. 4-10, 1913	3,877,200	3, 233, 600	83	198
D	1913-14	Apr. 20-26, 1914	3, 537, 000	2,946,600	83 72	• • • • • • • • • •
ν	1910-11	Mar. 19-25, 1911 Dec. 16-22, 1911	4,335,400 3,168,000	3, 120, 000 2, 700, 000	85	••••
	1912-13	Sent 12-18 1912	4,608,000	4, 140, 000	80	
	1912-13	Sept. 12–18, 1912 Apr. 4–10, 1913	4,800,000	3,744,000	89 78	300
	1913-14	Apr. 30-May 8, 1914	4,368,000	3, 216, 000	74	
B	1909-10	Sept. 13-19, 1909	7,638,000	6,062,400	79	351
	1910-11	July 8-14, 1910.	7,663,600	5,627,800	73	• • • • • • • • • • • • • • • • • • • •
1	1910-11 1911-12	Mar. 29-Apr. 6, 1911	6,379,6 <b>00</b> 6,148,8 <b>00</b>	5, 155, 200 4, 156, 800	81 68	·····
	1912-13	Apr. 19-25, 1912. Aug. 21-27, 1912.	7,747,200	6, 235, 000	80	
•	1912-13	Apr. 18-24, 1913	6,075,000	5,035,000	83	
	1913-14	Trah 21-27 1014	6,530,400	5,777,000	88	312
f		Dec. 16-22, 1911	6,860,000	4,428,000	65	191
	1912-13	Sept. 21-27, 1912	4, 180, 800	3,320,000 3,306,000	79 57	119
G	1913-14 1910-11	July 8-10, 1914. Aug. 6-12, 1910.	5,842,000 4,272,000	3, 216, 000	75	14
······································	1911-12	Feb. 26-Mar. 2. 1912	5, 472, 000	4, 560, 000	83	iñ
	1912-13	July 8-15, 1912	5, 256, 000	3,696,000	83 70	
	1912-13	June 5-11, 1913	4,416,000	3, 384, 000	77	
	1913-14	Aug. 29-Sept. 5, 1913	5,220,000	3,072,000	59	161
H	1913-14 1912-13	Mar. 8-16, 1914 Nov. 23-24, 1912.	3,936,000 434,300	2,640,000 343,000	67 79	121
Ī	1910-11	Nov. 19-25, 1910	3, 548, 600	3, 240, 000	91	187
	1911-12	Mar. 28-Apr. 5, 1912	3,846,000	3, 168, 000	82	200
	1912-13	May 8-14, 1913	3,975,400	3, 161, 100	80	
К	1913-14	Mar. 28-Apr. 3, 1914	3,853,700	2, 206, 300	57	171
<b>A</b>	1910-11 1911-12	Nov. 19-25, 1910	3,649,700 3,602,000	2, 592, 000 2, 592, 000	71 72	158 172
	1912-13	May 9-14 1913	3, 896, 600	2, 454, 900	63	126
	1913-14	May 8-14, 1913	3,310,300	1,609,700	49	
L <b></b>	1910-11	Dec. 13-19, 1910	8, 104, 900	7, 168, 000	88	225
	1911-12	Mar. 15-21, 1912	7,344,000	4, 392, 000	59	200
	1912-13	June 5-11, 1913	6,312,000	2,880,000	46	••••
<b>w</b>	1913-14 1910-11	Mar. 8-15, 1914	4,476,000 1,603,100	3, 432, 000 1, 170, 000	77	•••••
	1910-11	Apr. 14-21, 1911	1,755,600	1,236,000	70	141
Ŋ <b></b>	1910-11	June 6-12, 1911	568,700	275,900	49	110
o	1910-11	June 14-20, 1911	939, 500	878, 200	98	48
P Q-R	1910-11	June 16-23, 1911	388, 200	289,500	75 68	119
4-v	1910-11	June 17–24, 1911	632, 700	427,600	08	• • • • • • • • • •

<sup>&</sup>lt;sup>1</sup> Anacostia gravity service included from this date.

## I.—Surveys of permanent pitometer districts.

## PITOMETER DISTRICT G, SURVEY NO. 3.

Date of measurement, Aug. 29-Sept. 5, 1913.

Mean daily supplygallons	5, 220, 000
Minimum night ratedo	
Ratio of minimum night rate to mean daily supplyper cent	
Subdivision survey:	
Started, July 24, 1913.	
Finished, Dec. 21, 1913.	

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\_ \$3, 639. 86

Population:	
Resident-	
Metered	19, 046
Unmetered	<b>13</b> . <b>325</b>
•	
Total	32, 371
:	
Floating—	
Metered	7, 339
Unmetered	4, 024
· · · · · · · · · · · · · · · · · · ·	11 400
Total	
Per capita consumption, computed from resident population	161
Buildings: Dwellings—	
Metered	4,001
Unmetered	
Hotels and apartments—	0, 111
Metered	57
Unmetered	5
Municipal buildings—	_
Metered	16
Unmetered	1
Federal buildings—	
Metered	2
Unmetered	7
Factories—	_
Metered	2
Unmetered	1
Restaurants—	04
Metered	21
Unmetered	0
Miscellaneous— Metered	261
Unmetered	264
Total—	201
Metered	4, 360
Unmetered	3, 392
	Gallons.
Night flow detected by subdivision, per day	
Due to inside flow—	<b>_,</b> 0_0, _00
Metered	333, 300
Unmetered	
Due to underground leakage—	
Service pipes	406, 700
Joints on mains	14, 200
	100 000
Total underground leakage	
Due to Federal buildings and fountains	561, 500
Due to municipal buildings, fountains, flush basins, horse foun-	90 900
Total flow accounted for	32, 800
Total flow unaccounted for	
TAME TOM ATTRICEMENT TAY	30, 100
PITOMETER DISTRICT I, SURVEY NO. 3.	
Date of measurement, Mar. 28-Apr. 3, 1914.	
Mean daily supplygallons	3, 853, 700
Minimum night ratedodo	2, 206, 300
Ratio of minimum night rate to mean daily supplyper cent	57
Subdivision survey:	-•
Started, Mar. 1, 1914.	
Finished, June 18, 1914.	
Cost	<b>\$8, 408. 92</b>
• • • • • • • • • • • • • • • • • • •	

Population:	
Resident—	13, 784
MeteredUnmetered	8, 792
VIIIICICI	0, 142
Total	22, 576
Floating—	
Metered	4. 795
Unmetered	2, 261
Total	7, 056
Per capita consumption, computed from resident population	171
Buildings:	
Dwellings— Metered	4 000
	1, 925 2, 163
Unmetered	2, 105
Metered.	90
Unmetered	2
Municipal buildings	
Metered	10
Unmetered	2
Federal buildings-	-
Metered	7
Unmetered	2
Metered	2
Unmetered	ō
Restaurants-	•
Metered	15
Unmetered	0
Miscellaneous—	
Metered	259
Unmetered	219
Total— Metered	2, 308
Unmetered	2, 388 2, 388
(11111/17/17/17/17/17/17/17/17/17/17/17/1	Gallons.
Night flow detected by subdivision, per day	
Due to inside flow—	
Metered	225. 800
Unmetered	493, 600
Due to underground leakage—	150 400
Service pipes	156. 400 93. 000
Valves	7, 500
W.   VA ==================================	
Total underground leakage	256, 900
Due to Federal buildings and fountains	
Due to municipal buildings, fountains, flush basins, horse fountains	34,000
Total flow accounted for	
Total flow unaccounted for	149, 900
PITOMETER DISTRICT K, SURVEY NO. 3.	
Date of measurement, May 8-14, 1913.	
,	9 000 000
Mean daily supplygallons Minimum night ratedo	2 454 000
Ratio of minimum night rate to mean daily supplyper cent	63
Subdivision survey:	<b></b>
Started Dec. 18, 1918.	
Finished Apr. 14, 1914.	
Cost	<b>\$2, 678. 01</b>

Population:	
Resident—	
Metered	18, 805
Unmetered	7, 961
Total	26, 266
Floating—	
Metered	8, 783
Unmetered	
Matal	10.010
Per capita consumption, computed from resident population	
Buildings:	120
Dwellings-	
Metered	
Unmetered	1, 638
Metered	115
Unmetered	. 8
Municipal buildings—	10
Metered Unmetered	
Federal buildings-	_
Metered	
Unmetered	. 2
Factories— , Metered	4
Unmetered	_
Restaurants—	
Metered	
Unmetered Miscellaneous—	. 0
Metered	481
Unmetered	845
Total—	0.004
Metered Unmetered	
V IIIIG 171 74	Gallons.
Night flow detected by subdivision, per day	
Due to inside flow—	
Metered	563, 100
Unmetered	557, 800
Due to underground leakage—	
Service pipes	
Joints on mains	97, 600
Total underground leakage	820, 500
Due to Federal buildings and fountains	2,000
Due to municipal buildings, fountains, flush basins, horse foun-	
Total flow accounted for	
Total flow unaccounted for	
PITOMETER DISTRICT L, SURVEY NO. 8.	,
Date of measurement, Mar. 8-15, 1914.  Mean dally supplygallons	4.478.000
Minimum night ratedodo	3, 432, 000
Ratio of minimum night rate to mean daily supplyper cent	77
Subdivision survey: Started, May 28, 1914.	
Started, May 28, 1914. Finished, Aug. 8, 1914.	
	<b>\$</b> 2, 614. <b>85</b>

Population:	
Resident—	
Metered	<b>36, 350</b>
Unmetered	811
Total	37, 161
Floating—	
Metered	4, 794
Unmetered	
Total	
Per capita consumption, computed from resident population	121
Dwellings—	
Metered	7, 243
Unmetered	189
Hotels and apartments—	77
MeteredUnmetered	. 77
Municipal buildings—	v
Metered	21
Unmetered	. 1
Federal buildings—	-
Metered	1
UnmeteredFactories—	U
Metered	. 4
Unmetered	Ō
Restaurants—	
Metered	
Unmetered Miscellaneous—	. 0
Metered	777
Unmetered	
Total—	
Metered	
Unmetered	262
	Gallons.
Night flow detected by subdivision, per day	2, 103, 800
Due to inside flow—  Metered	1 944 000
Unmetered	1, 023, 000
V 44401V1VQ	
Due to underground leakage—	
Service pipes	144, 700
Joints on mains	
V417C9	10,000
Total underground leakage	168, 400
Due to municipal buildings, fountains, flush basins, horse foun-	
tains	
Total flow unaccounted for	
TOTAL TOM UNICCONTINCT TOT	02, 000
PITOMETER DISTRICT E, SURVEY NO. 3.	
Date of measurement, Feb. 21-27, 1914.	
Mean daily supplygallons	6, 530, 400
Minimum night ratedodo	. 5, 777, 000
Ratio of minimum night rate to mean daily supplyper cent	. 88
Subdivision survey:	
Started, Aug. 17, 1918. Finished, Mar. 21, 1914.	
Cost	\$4,094.02

Population:	
Resident—	
Metered	5, 365
Unmetered	15, 471
Total	20, 836
Floating—	
Metered	9, 052
Unmetered	8, 845
•	
Total	17, 897
Per capita consumption, computed from resident population	818
Buildings:	
Dwellings—	
Metered	479
Unmetered	3, <b>449</b>
Hotels and apartments—	
Metered	54
Unmetered	12
Municipal buildings—	
Metered	11
Unmetered	8
Federal buildings—	_
Metered	6
Unmetered	8
Factories—	
Metered	17
Unmetered	2
Restaurants-	4=
Metered	47
Unmetered	1
Miscellaneous— Metered	900
	882
Unmetered	481
Total—	
Metered	996
Unmetered	8, 956
Λππειεισί	•
	Gallons.
Night flow detected by subdivision, per day	<b>2, 644, 400</b>
Due to inside flow—	
Metered	622, 600
Unmetered	
• · · · · · · · · · · · · · · · · · · ·	
Due to underground leakage—	446 00-
Service pipes	443, 800
Joints on mains	120,000
Service to public hydrants	6, 000
Motel underground lechage	K00 000
Total underground leakage	569, 800
Due to Federal buildings and fountains.  Due to municipal buildings, fountains, flush basins, and horse	338, 600
	121, 500
fountains	
Total flow accounted for Total flow unaccounted for	76, 800
TAME TO A CHRECOGNECO TO	10, 500
PITOMETER DISTRICT F, SURVEY NO. 2.	
• • • • • • • • • • • • • • • • • • • •	
Date of measurement, Sept. 21-27, 1912.	
Mean daily supplygallons	4, 180, 800
Minimum night ratedo	3, 320, 000
WINDROW HIER 1817-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	
Ratio of minimum night rate to mean dully supplyper cent	79
Ratio of minimum night rate to mean daily supplyper cent Subdivision survey:	79
Ratio of minimum night rate to mean daily supplyper cent	79
Ratio of minimum night rate to mean daily supplyper cent Subdivision survey: Started, Feb. 18, 1913. Finished, Sept. 28, 1913.	79
Ratio of minimum night rate to mean daily supplyper cent Subdivision survey: Started, Feb. 18, 1913. Finished, Sept. 26, 1913. Cost	79 \$4, 430. 23
Ratio of minimum night rate to mean daily supplyper cent Subdivision survey: Started, Feb. 18, 1913. Finished, Sept. 28, 1913.	79 \$4, 430. 23

Population:	
Resident—	
Metered	10.817
Unmetered	24, 228
— . •	
Total	35. 045
Floating—	
Metered	8, 966
Unmetered	
V MMV(V) VV	1, 210
Total	10, 179
Per capita consumption, computed from resident population	
Buildings:	
Dwellings-	
Metered	1.860
Unmetered	5, 247
Hotels and apartments—	•
Metered	21
Unnietered	4
Municipal buildings—	
Metered	20
· Unmetered	3
Federal buildings—	
Metered	2
Unmetered	1
Factories—	
Metered	6
Unmetered	1
Restaurants-	
Metered	44
Unmetered	8
Miscellaneous-	
Metered	<b>24</b> 8
Unmetered	549
Total—	
Metered	
Unmetered	
	Gallons.
Night flow detected by subdivision, per day	<b>8, 196, 400</b>
Due to inside flow—	
Metered	
Unmetered	784, <del>0</del> 00
Due to underground leakage—	
Service pipes	277, 500
Joints on mains	22, 800 12, 200
Broken mains	
Valves	7, 100
Total underground leakage	319, 600
Due to Federal buildings and fountains	1 604 000
Due to municipal buildings, fountains, flush basins, horse fountains.	72 700
Total flow accounted for	3. 115. 400
Total flow unaccounted for	
	,
PITOMETER DISTRICT M, SURVEY NO. 2.	
Subdivision survey:	
Started Oct. 8, 1913.	
Finished Jan. 11, 1914.	
Cost	\$1, 17K R1
AAAA	41, 110. UL

Population:	
Resident—	
Metered	14.074
Unmetered	192
Total	14. 266
Floating—	
Metered	5, 190
Unmetered	73
Total	5, 263
Buildings:	-,
Dwellings—	
Metered Unmetered	1,844
Hotels and apartments—	41
Metered	92
Unmetered	ō
Municipal buildings—	
Metered	10
Unmetered	0
Federal buildings— Metered	^
Unmetered	0 3
Factories—	o
Metered	0
Unmetered	Ď
Restaurants—	_
Metered	1
Unmetered	0
Metered	116
Unmetered	24
Total—	
Metered	2, 063
Unmetered	68
	Gallons.
Night flow detected by subdivision, per day	<b>480, 500</b>
Due to inside flow—	014 400
Unmetered	<b>314, 400</b>
VIIIIE(C1CU	
Due to underground leakage—	
Service pipes	<b>35. 200</b>
Joints on mains	11, 000
Valves	6, 000
Total underground leakage	FO 000
Due to Federal buildings and fountains.	52, 200 63, 000
Due to, municipal buildings, fountains, flush basins, horse	00,000
fountains	35, 500
Total flow accounted for	465, 100
Total flow unaccounted for	<b>15, 400</b>
PITOMETER DISTRICT N, SURVEY NO. 2.	
Subdivision survey:	
Started. May 24, 1914; finished, June 27, 1914.	
Cost.	\$518, 87
~~~,	7020.01
Population:	
Resident—	_
Metered	6, 448
Unmetered	16
Total	6, 464
	0, 101

Population—Continued.	
Floating—	
Metered	1, 084
Unmetered	26
Total	1, 110
Buildings:	2,
Dwellings-	•
Metered	1, 178
Unmetered	6
Hotels and apartments—	
Metered	87
Unmetered	0
Municipal buildings—	
Metered	1
Unmetered	0
Federal buildings—	_
Metered	1
Unmetered	0
Miscellaneous—	
Metered	47
Unmetered	23
Total— Metered	1 004
Unmetered	1, 264 29
Ommerca and a second a second and a second a	29
	Gallons.
Night flow detected by subdivision, per day	106, 400
right now detected by bubarrison, per any	100, 300
Due to inside flow—	
Metered	15, 500
Unmetered	0
Due to underground leakage—	
Total underground leakage, service pipes	9, 500
Due to Federal buildings and fountains	63, 000
Due to municipal buildings, fountains, flush basins, and horse	•
fountains	18, 400
Total flow accounted for	106, 400
PITOMETER DISTRICT O, SURVEY NO. 2.	
Subdivision survey:	
Started, Jan. 1, 1914.	
Finished, May 20, 1914.	
Cost	\$1, 869, 55
=	
Population:	
Resident—	
Metered	24, 858
Unmetered	691
Total	25, 549
	20, 010
Floating-	
Metered	6, 425
Unmetered	1, 399
Total	7, 824
Buildings:	.,
Dwellings-	
Metered	4, 881
Unmetered	172
Hotels and apartments—	
Metered	72
Unmetered	1

OFERATIONS OF THE ENGINEER DEPARTMENT, D. C.	87
Buildings—Continued.	•
Municipal buildings—	
Metered	44
Unmetered	11 3
Federal buildings—	3
Metered	0
Unmetered	2
Factories	2
Metered	2
Unmetered	ő
Miscellaneous—	v
Metered	265
Unmetered	17
Total-	
Metered	5, 231
Unmetered	195
	Gallons.
Webt flow detected by embdirieless non-dess	
Night flow detected by subdivision, per day	508, <b>80</b> 0
Metered	314, 800
Unmetered	,
Uninewren	8,000
Due to underground leakage—	
Service pipes	40,000
Valves	4,000
T 617 700	4,000
Total underground leakage	44,000
Due to Municipal Building, fountains, flush basins, horse foun-	22, 000
tains	141, 700
Total flow accounted for	508, 500
Total flow unaccounted for	300

## REPORT OF THE WATER REGISTRAR.

WASHINGTON, October 2, 1914.

SIE: I have the honor to submit the annual report of the revenue and inspection branch of the water department showing in detail the work accomplished during the fiscal year ended June 30, 1914.

## INSTALLATION OF METERS.

The work during the year consisted in metering that portion of the first high service embraced in the territory between Ninth and Sixteenth Streets and L Streets of Florida Avenue NW., Fifty to Fifteenth Streets and East Capitol to E Streets SE., and Congress Heights and Twining City. Meters were also installed in areas previously covered where new houses had since been erected.

In areas previously covered where new houses had since been erected.

In the city proper, especially in the northwest section, the majority of services were of wrought iron in bad condition from long use and corrosion, requiring careful handling, and in many cases repairs before a meter could be installed.

In all cases where the curb cock or box was missing a new one was installed.

The long hauls to authorized dumps have greatly handicapped the work, necessitating a considerable loss of time.

The number of meters installed during the year was 8,634, and the number discontinued was 129, making a total now in use 42,161.

The following shows the average cost of installing a meter:

Meter	. 2.21
Total	10. 54

63977°--- p c 1914- -vor. 2-----8

Incharge, master plumber (\frac{1}{2} \text{time}^1)\_\_\_\_\_\_

The following shows the average force engaged:

Plumbers	2
Laborers	25
2-horse teams	3
1-horse wagons	
The following additional work was performed in connection with the instation of meters: Adjusting meter pits to grade; removing meters for test, essetting temporary meters, etc. This work is handled by the following force	tc.;
In charge, master plumber (\frac{1}{2} \text{ time}^1)	1
Plumbers	2
Laborers	2
1-horse wagons	2

To facilitate the work in connection with the meters in service, the following system has been adopted and has been in successful operation since its inception:

Meters are grouped as follows: Private meters where the consumption exceeds 100,000 cubic feet per quarter; private meters where the consumption does not exceed 100,000 cubic feet per quarter; fire service; and District meters.

Private meters in business establishments that exceed 100,000 cubic feet per quarter are read weekly and a card is provided by this office, which is posted in some convenient place on the premises, and it is the duty of the meter reader to record the consumption on this card. This plan has proved satisfactory both to the consumer and the office, inasmuch as it has reduced the number of complaints in regard to large bills to a minimum, and also keeps the owner of the place in touch with his account from week to week, which has resulted in prompt action on his part in cutting down all waste of water.

Private meters where the consumption does not exceed 100,000 cubic feet per quarter are read eight times a year. When it is found that there has been an extraordinary consumption of water, an examination is made for leaks, and if any are discovered the responsible party is notified.

Fire-service meters are read monthly, and if any show registration an investigation is immediately made as to the cause and an explanation demanded.

District meters in municipal institutions are read monthly, and the responsible

department notified if leaks or wastes are found.

District meters installed on service pipes supplying private residences are read at frequent intervals, averaging about eight times a year. Special reading cards are made out and the premises kept under constant observation where the rate of consumption is much in excess of the proportion based upon the minimum payment in advance. Where leaks are found in metered premises, the occupants and the agents (if they have a request filed for such information) are notified, and in case no attention is paid to such warnings and the leaks are large enough to justify such action, the supply is discontinued until the proper repairs are made. For convenience in handling such accounts, houses are divided into three classes: First, large houses, where considerable water is required; in such places, if abnormal use of water is indicated by the meter. the occupant is notified by card to that effect and the case is dropped. Second, medium-sized houses; if the consumption is found to be excessive, a notice is sent to that effect, and if after a reasonable time no change is observed, an examination is made, and if any leaks are found the occupant is again notified that if this condition is allowed to continue large bills will naturally result. Third, small houses, which are occupied in many instances by irresponsible parties; in such cases, where an extraordinary wastage of water is found, the supply is discontinued after one notice has been served.

In the first two classes the notices are generally met with prompt action on the part of the occupant or agent, but in the third class considerable trouble is experienced, as the principal waste can be traced to these small houses.

In every examination for leaks or wastes a reading of the meter is taken and the per diem rate of consumption computed, and by this means the office is enabled to determine the size and character of the leak or waste.

<sup>&</sup>lt;sup>1</sup>As this man also has charge of taking out meters for test and repairs, etc., only half of his time is properly charged to installation.

#### OBGANIZATION.

For convenience in handling the work the force is subdivided as follows:

Subdivision 1 (B. H. Grove in charge).—Meter accounts, meter computations, meter readings, examinations relative to excessive consumption, tapping of water mains, introduction of water into premises, inspection of new services and repairs made by plumbers, leak records, reports, records, and correspondence.

Subdivision 2 (W. R. Chapell in charge).—Making bills for meter and flat-

rate accounts, preparing cut-off notices for nonpayment of water rents, notifica-

tions for nonpayment.

Subdivision 5 (J. A. Mudd in charge).—The work of this subdivision consists of the verification of information furnished by owners of premises where water is to be introduced, as to house, lot numbers, and rating, and also changes in street names and house numbers and the entry of same on the office records. Subdivision 4 (O. F. Bokloff in charge).—The duties of this subdivision consist of examining all permits for the introduction of water, the issuing of taps

and curb cocks, and permits for the use of water for building purposes.

Subdivision 5 (H. C. Schaeffer in charge).—Records of meter installation, re-

pairs, cost of maintenance, and inspections in the field.

Subdivision 6 (A. C. Parker in charge).—Posting, checking, and auditing accounts, care of meter and flat-rate account cards and filing of same.

Subdivision 7 (A. Marks in charge).—Leak examinations, cutting off and turning on water, locating services, taps and curb cocks, repairs, and connecting of services for which the water department is responsible, repairs to curb-cock boxes, etc.

Subdivision 8 (W. F. Sullivan in charge).—Meter installation and removal of

meters for repairs.

## LEAKS AND WASTES.

During the year 55,368 examinations for leaks were made; this included the ordinary leaks at house fixtures and the more complicated cases of underground leaks, the detection of which required considerable time and the employment

of experienced men.

Six hundred and seventy-two abandoned water services were disconnected at the tap in the main; of this number 190 formerly served houses that have since been torn down; the remainder were installed many years ago and in a majority of cases never used. This latter class of services has caused considerable trouble in the past owing to the fact that in some cases there was either no data as to their installation or the location was so indefinite as to be practically

useless. Leaks from this source were therefore very difficult to locate.

The water supply was cut off from 3,840 houses this year during the period of vacancy, which has resulted in the saving of considerable water and has prevented the reoccupying of these houses without the knowledge of the office,

thereby assuring full payment for the time the water was used.

Eleven thousand service pipes, taps, and curb cocks were located during the year. This work was done in advance of the meter installation, thereby rendering it unnecessary to defer the installation of a meter on account of the indefinite location of the service. For this purpose an electrical device, invented by an employee of this office, known as the Grove electric indicator, was used to great advantage, resulting in considerable economy in time and money, besides avoiding the cutting of granolithic sidewalks and asphalt roadways. This instrument was employed during the year in 1,232 cases where it was necessary to determine the exact location of services and private water mains.

The subdivision engaged on leaks and wastes also performed the following additional work: One hundred and seventy-three new curb cocks installed or old ones repaired, 37 services repaired, 10 street washers repaired or new ones installed, 5 hydrants repaired, 9 pressure regulators installed, 9 services lowered to grade, 34 private services disconnected, and 183 house services connected direct to mains. Some of the old services abandoned formerly supplied two or more houses, which accounts for the difference in the number of services.

## SERVICE CONNECTIONS.

One thousand three hundred and thirty-seven new service connections were made, inspected, and locations recorded during the year.

Nine hundred and twenty-nine repairs, etc., to water services and appurte-

nances were inspected and recorded.



This work has been handled by the regular inspector with some assistance from the office force, and inspections have been made in the majority of cases within one hour from the time specified by the plumber doing the work.

Owing to the reduction in number of new services installed, the tapper and assistant tapper have been used on work in connection with leaks and wastes, which work has materially increased. This detail did not occasion any loss of time in connection with tapping mains and saved the employment of more men on leaks and wastes.

#### REVENUES.

The table of comparative revenues shows a total collection of \$767,178.40.

#### TABLES.

Table 1 shows statement of collections.

Table 2 shows comparative statement of revenues.

Table 3 shows number of meters in service.

Table 4 shows number of meters repaired.

Table 5 shows consumption of water in premises in which District of Columbia meters were installed.

Table 6 shows consumption of water in buildings owned or controlled by the District of Columbia.

Table 7 shows consumption of water in charitable institutions, hospitals, etc., which receive an allowance of free water.

Table 8 shows consumption of water in business establishments required by law to meter at their own expense.

Table 9 shows miscellaneous work performed.

Table 10 shows general information.

#### CARD-RECORD SYSTEM.

By means of the perfected card system for meter accounts, in which the color scheme is further improved by the introduction of a series of stripes, tabs, and incisions, it is possible to detect a misplaced card in the entire system within a few moments, thus avoiding delays in locating accounts.

#### PRINTING.

There were 1,095,995 blank forms, cards, etc., printed during the year under 307 different orders, covering all the work of this character required by the water department.

Great economy of time in obtaining forms and considerable saving in costs have resulted from the installation of this plant, and it has proved its value especially during the past year, in which time there has been a complete revision of the methods of stock and time keeping, thus requiring new forms with the least possible delay.

#### WATER RATES.

There has been no change in water rates during the past year. The rate for domestic purposes is charged according to stories and front feet. On all tenements two stories high with frontage of 16 feet or less, \$5 per annum. For each additional front foot or fraction thereof greater than one-half, 31 cents. For each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, volume of business, and water facilities, and rate from \$1 to \$25. If the flat rate on business establishments reaches \$25 or more, the owner or occupant is required to install a water meter at his own expense.

Meter rates.—A minimum rate of \$450 per annum is charged against all consumers supplied with water through meters, which allows the use of 7,500 cubic feet of water during the fiscal year, water used in excess of this quantity being charged for at the rate of 4 cents per 100 cubic feet.

#### CONDITION OF WORK.

Notwithstanding the fact that there has been a very large increase in business over that of previous years owing to the change from the flat rate to the meter system, the condition has been met without any material additions to the force and the work was to date at the close of the year.



alt was obtained by the faithful cooperation of the employees and ag response to the demands of the service by frequently working for which I now take pleasure in expressing my appreciation. respectfully.

GEO. W. WALLACE, Water Registrar.

ERINTENDENT, WATER DEPARTMENT.

TABLE 1 -Statement of collections

TABLE 1.—Statement of confections.	
nte	\$229, 016. 10 413, 696. 85 3, 583, 20
	0,47300
in tax, principal and interest \$86, 379, 21 stopcocks 6, 118, 20 eous receipts 4, 253, 20	
	THE PERSON NAMED IN
otal receiptsnts, deposits, and special appropriations	743, 046, 76 24, 131, 64
tal receipts and repaymentson hand July 1, 1913	767, 178, 40 1 61, 218, 29
ceipts and repayments, including balance brought forward from previous year	828, 396, 69

lumbia, for the fiscal years from June 30, 1903, to June 30, 1914.

ear.	Water rents.	Water- main tax— principal and in- terest on same.	Taps and stop- cocks.	Miscel- laneous receipts.	Repayments, deposits, and special appropriations.	Total re- ceipts and repay- ments,	Receipts and re- payments, including balance brought forward from year to year.	Expendi- tures.
ance for-								
ior-	*15:1:212.12	an-min	117111711	**********		\$341,337.37		11111111111
	\$341,947.53	\$51, 713. 64 32, 217. 84			\$16,074.20 27,652.46		\$758, 460. 67 473, 806. 07	
		34, 395, 76						
	468, 889. 47	51, 319. 62	9, 487. 10	6, 254. 73	19, 912, 51	555, 863, 43	587, 770. 31	530, 379, 39
		57, 462, 39						
		57,654.06						
		76, 905. 15 101, 987. 53		1, 715. 20 960. 04				
555		122, 458. 81			110, 441, 39			
		138, 693, 75			14, 923, 91			
	646, 296, 15	86, 379. 21	6, 118. 20	4, 253, 20	24, 131. 64	767, 178. 40	828, 396. 69	794, 952, 16
	5, 371, 197. 41	811, 187. 76	99, 937. 30	25, 769. 61	457, 202. 83	7, 106, 732. 28		7,073,287.75
		60,000.00						
	636, 000. 00	60,000.00	6,000.00			\$ 715,500,00		

The above balance does not indicate a surplus in the water fund of receipts, in that is not take into consideration outstanding obligations incurred but not paid during fiscal year.

Stimated.

stimated total revenue.

TABLE 3 .- Water meters.

	j-inch.	i-inch.	†-inch.	1-inch.	inch.	2-inch.	3-inch.	4-inch.	6-inch.	8-inch.	Total
merican		164	5	11	4						u
merican, new model.	<b></b> .	94		<u></u> .	<u></u> -	<u>::</u> -	<u>-</u> -		<b>-</b>	••••	
rown mpire	<b></b>	52	11	35 3	27	11	8 3	2		• • • • • • • •	
naro	·····		13	16	24	1 4		•			
ureka	l <b>.</b>					l	l <b>.</b>	1		l <b>.</b>	
amon		13						<b>.</b>	<b></b>		
em	• • • • • • • •		<u></u>		<b>.</b> . <u></u> .	22	18	7	1		_
ersey, disk	• • • • • • •		389	41	91	28	12	2	1	<b>-</b>	22.2
ersey, model F ersey, detector	• • • • • • •	22, 2/1	• • • • • •	· · • · · · · ·	<b>-</b>		6	6		3	22, 2
avetone Pittshurch	ı			• • • • • • • •	i			•		l "i	
diskeystone, model W	<b>.</b>		30	38	33	20	23	3	<b>.</b>	l <b>.</b>	1
eystone, model W		11,331		<b>.</b>		<b>.</b>		. <b></b>	<b>.</b> . <i></i> .		11.3
ingambert	<b>.</b>	162		2	5	<u></u> .		<b>.</b> <u>.</u> .			_ 10
ambert		1, 137	195	126	102	57	15	7	1	<b>-</b> -	1,6
ambert, special	l	463							l	1	40
modelash	····i	140	498	485	277	125	34	13	2		1.5
iagara	•	14	53	41	58	22	i	10	· · ·		17
andard					4	1 7					-
homson	1		25	54	40	25	1	1			14
homson rident, disk		2,308	66	93	84	24	2	<b>.</b>	<b></b>	<b>.</b>	2, 57
rident.compound	l <b>.</b>	1			<b>.</b>		2	1	<b>.</b> <u>.</u> .	<b>-</b>	_
rident, crest	• • • • • • • •				<u>-</u> -		4	13	1	<b>-</b>	1
nion		227	40	11 42	7 18	17	10	1	- · • · · · ·		2
orthington		27	10	13	19	11	10	•	· · • · · · ·		-
orthington, model G	··· <b>·</b> ···			• • • • • • •	• • • • • • • • •			••••		l	•
(old)	l <b></b>	75			l <b>.</b>		1		l <b>.</b>	l	7
Total	2	38, 470	1,329	998	774	364	139	62	15	3	42, 15
egister								• • • • • •			
Total meters and											
registers		·····			<b>.</b>						42,16
eters installed to June eters installed in priv 1913–14. eters installed by priv	ate par	ties		. <b>.</b>	•••••	• • • • • • • • • • • • • • • • • • •	••••••				33,65 8,50 13
Total						• • • • • • • • • • • • • • • • • • •		. <b>.</b>			42, 28
istrict of Columbia me	eters ab	endone	1, 1913–1	l4	•••••	• • • • • • •	• • • • • •	. <b></b>	• • • • • •	75	
rivate meters abandon	16a, 191	3-14	• • • • • •		•••••	• • • • • • •	••••		• • • • • •	54	12
			_	20 1014						• • • • • • • •	42, 15
Total number of r	meters i	n servic	e June						• • • • • •		
Total number of r		• • • • • • •	• • • • • •		••••	• • • • • • •	• • • • • •				42, 16
Total number of r	neters s	and regi	sters		<b>-</b>	•••••		· • • • • • • •		·····	<u> </u>
legisters	neters s ine 30, 1 1913–14	and regi	sters			••••••		· · · · · · · · · · · · · · · · · · ·		- 	65, 73 1, 37

TABLE 4.-Meters repaired.

	f-inch.	}-inch.	1-inch.	1}-inch.	2-inch.	3-inch.	4-inch.	6-inch.	Total.
Meters repaired	1, 219	157	105	64	40	16	7	3	1,61
Abutments	7 6 24 10 5	8 6 5 1	1 7 8	4 6 1	2 1	•••••	1		10 22 83 11
Dial plates	388 10	, 4 78	<b>32</b>	1 22 1	9 1	2	3		52 1
Disk shafts Plange bolts Peakets (flange) Peakets (registers)	28 100 9	21 6 22 1	9 10 12	3 15 1	3				3 5 13
Jears Jineses Jids Pointers	13	7 9 14 1	6 2	19 2	9 2	1			19 4 3 1
Registers	149 12 8 86	8 3 87	1 3 33	5 1 35	1 12	1 5	3	1	16 1 1 26
Total parts	1,068	275	121	116	40	13	7	1	1,63

 Meters in service, including registers
 42,161

 Cost of labor and material for maintenance
 \$17,367.29

 Average cost per meter for maintenance
 \$0.41

Table 5.—Houses that have paid only the minimum rate of \$4.50, those that have exceeded the amount allowed under the minimum rate, and a comparison between the amount of water allowed and the amount of water used, and the amounts paid under the flat rate and the meter schedules; not including premises where private meters are installed, municipal buildings, or charitable institutions.

	Houses.	Moters.	Amount of water actually used.	Amount of water allowed per annum under payment of \$4.50.	Differ- ence.	Amount used in excess.	Paid meter rate, 1914.	Paid flat rate, 1908 to 1913.
Paid min imum rate. Paid in excess of the	15,038	14, 517	Cubic feet. 95, 142, 000	Cubic feet. 112, 785, 000	Cubic feet. 17, 643, 000	Cubic feet.	\$67, 671. 00	\$104,969.65
minimum rate Paid fractional rates. Premises on which an allowance was		13,727 1,219	193, 426, 200 6, 920, 300	102,840,000 7,687,500	767, 200	90, 586, 200	97, 938. 48 4, 612. 50	106, 147. 74 8, 004. 25
made for under- ground leaks Vacated before pay- ment could be en-	96	93		1 ' '	' '		727.14	725. 48
No payment for fis- cal year 1914, va- cant	688	638 204	-	3,957,500		20,700,900	10, 672. 86	6, 540. 19 2, 306. 72
Total	30, 921	30, 398	322, 644, 500	228, 727, 800	19, 408, 000	111, 287, 100	181, 621. 98	227, 694. 03
Meters in operation. Meters installed to to	ake effect	July 1,	1914					30, 398 8, 223
Total meters Total premises Amount paid Average payment for		•••••	•••••	• • • • • • • • • • • • • • • • • • • •	•••••		••••••	<b>\$</b> 5. <b>87</b>
Rate (considering on Flat rate			· •	• • • • • • • • • • • • • • • • • • • •				\$7.81 \$5.76
Difference							- 	\$1.55

Table 6.—Meters installed in various buildings owned and controlled by the District government.

Class of building.	Annual consumption.	Premises.	Meters.	Class of building.	Annual consump- tion.	Premi- ses.	Meters.
SCHOOLS.				schools contd.	~		
	Cubic feet.	_	٠.	V	Oubic feet. 117, 300	_	Ι.
Abbott	95,400	1	1 1	Langdon	117,300	1	
Adams	309, 900 380, 100	1	1 1	Lengston	167, 700 70, 700	1	
Addison	84 900	1	i	Lincoln	123, 800	î	
midon	84,900 120,200	1	l î	Logan	100,500	ī	i '
rmstrong	484.100	i	l ī	Lovejoy	335.700	1	ļ
Banneker	587, 100	1	1	Logow	456, 200 409, 700	1	ŀ
Bell	641,800	1	1	M Street High	409,700	1	İ
Benning	13,500	1	1	McCormick	18,000	1	
Berrett	82,500 212,900	1	1 1	McKinley Madison	1, 171, 400 156, 000	1	,
Birney Blair	340,900	i	1 1	Magruder	188, 300	i	ί
Blake	91,600	i	l i	i madomitantine. O i	,	•	i
Blow	419, 900	ī	i i	Street. Manual Training,	1 113, 500	1	1
Bowen	1146, 400	1	1 1	Manual Training,			1
Bowen (S. J.)	996, 900 385, 900	1	1	Wisconsin Ave-		_	!
Bradley	335,900	Ī	1	Non-	237, 700	1	İ
Brent	177,700	1	1 1	Maury Military Road	85, 400	1	)
Briggs	250,800	1	1 1	Monroe.	108, 500	1	ĺ
Brightwood Brightwood Park	88,500	i	l i	Montgomery	388, 800 245, 300	i	
Brookland	118,700	i	9	Morgan	890,500	i	
Bruce	139, 300 118, 700 192, 200	ī	ī	Morse	159,000	ī	
Bryan	245,000	1	1	Morse Mott (new)	<b>520, 60</b> 0	1	
Buchanan	239, 400	1	1	Mott (old)	(*)	1	
Bunker Hill	56, 400	1	1	Orr	76,700	1	
Business High	1,507,500 239,100	1	1	Patterson	459, 200 635, 800	1	
Carberry Chevy Chase and	289, 100		1	Payne	386, 100	i	
annex	<b>520, 100</b>	1	1	Peabody	271, 100	i	
Cleveland	250,000	î	i i	Phelps	340, 600	ī	
Congress Heights	318, 100	1	1 1	I lol Co	164,000	1	
Cook	104, 100	1	1 2	Polk	103,000	1	
Cook Henry D. Cook	503, 600	1	] 3	Potomac	221.900	1	
corcoran	215, 700 146, 700	1	1	Powell	255, 100	1	
Cordoza	146,700	1	1 2	Randall Randall Highlands.	1 138,000 1 106,600	1	
Cranch Cruinmell, Alex	194, 200 431, 800	i	l î	Reservoir	668,000	i	
Curtis	102,900	i	l i	Ross	448,500	ī	
Dennison	458,800	1	l i	Beaton	200,900	1	
Dent	279,700	Ī	1	Simmons	234,000	1	
Douglass	561,600	1	1	Simmons, power	1 107 24		
Eastern High	94,200 511,100	1	!	plant	1 107, 300	1	
Eaton	338, 700	1	1	Slater Smallwood	204, 300 128, 200	i	i
Eckington	279, 100	i	l i	Stevens	1, 112, 400	i	
Emery	468, 200	i	l i	Sumner	180, 100	î	
Pillmore	468, 200 177, 200	1	li	Syphax Takoma	204, 400 189, 500	1	
Force	''''' ''''' ''''''''''''''''''''''''''	1	1	Takoma	189,500	1	
Fort Reno	6,900	1	1	Taylor	201.300	1	
Franklin	388,400	1	1	Tennally	200, 100	1	. !
French	62,900	ļ	1	Thomson	504,000 27,100 101,700		
age	387, 800 178, 200	1	1 1	Toner	101 700	1	
Gales	314, 400	i	l î	Towers	181,600	i	
dding	298, 100	ī	i	Twining	241, 400	ī	
Garrison	223,700	ī	1	Tyler	164,000	1	1
3rant	120, 100	1	1	Van Buren	132,600 85,900 367,200	1	
Preenleaf	114,900	. 1	1	Van Ness	85,900	1	
Hamilton	_ ± 800	1	1 !	Wallach	367,200	1	j
Harrison	77, 700 262, <b>300</b>	1	1 1	Webb Webster	161,800 233,500	1	
Hayes	40,700	i	i	Weightman	146,500	i	
Henry	82,900	i	l i	West	146,500 318,300 361,300	i	
Hubbard	160, 800	î	1	Western High	361,300	i	
Hyde	417,000	ī	1	Wheatley	158, 100	ì	1
ackson	180, 100	1	1	Wilson	94, 100	1	
efferson	738,600	1	] 3	Wilson Normal	1 546, 800	1	
ohnson	181,000	1	1 1	Woodburn	1 11,600	1	1
Iones Ketcham Kenilworth	253, 300	;	1	Total	36, 287, 000	136	14
Ketcham	117,300	1	l il	AV	ou, aor, 000	100	1.0

1 For fractional part of year only.

· Water off. -

TABLE 6.—Meters installed in various buildings owned and controlled by the District government—Continued.

Class of building.	Annual consumption.	Premises.	Moters.	Class of building.	Annual consumption.	Premi-	Moters.
ADDEXES.				POLICE STATIONS.			
	0.37. 6.4				Cubic feet. 270, 200 126, 800		
Warder and Otis Streets.	Cubic feet. 1 136, 100	2	1	No. 1 No. 2	270, 200 126, 800	1	1 1
Streets. 822 Eighth Street				No. 3	417,900	1	1 1 1
NE	61,500	1	1	No. 3 No. 4 No. 5 No. 6	417,900 267,000 39,700 896,600	1	1 1
662 Massachusetts Avenue NE 1120 Twentieth	6,800	1	1	No. 6	595, 600 427, 900	1	1
Street NW	82,800	1	1	No. 7 No. 8	423, 200 417, 200	1	1
730 Twenty-fourth Street NW	3,400	1	1	No. 9	131,600 261,900	1	1
1338 H Street NE	<sup>1</sup> 1,400	ī	i	No. 11. Substation, Tennal- lytown, D. C	136,800	i	i
Eleventh Street,		'		lytown, D. C	10,700	1	1
between F and G Streets NE	5,300	1	1	Police-boat wharf House of Detention.	10,700 83,200 40,800	1	1
2412 Seventeenth Street NW	1 200	1	1	li '		1	1
Street NW	³ 1,800	1	1	Total	3, 212, 600	14	14
1407 Thirty-third Street NW	14,000	1	1	PUBLIC PLAY-			
837 Shepherd Street NW	3,700	1	1	GROUNDS.			
				Columbia Heights	34,900	1	1
Total	316,000	12	11	Georgetown Rosedale	238,800	1	2
FIRE-ENGINE		·		1	236,000	1	1
Houses, etc.				Total	509,700	3	4
Engine houses:	60, 400	1	,	PUBLIC CONVEN-			
NO. 2	443,800 36,000 27,600 106,300	1	1	IENCE STATIONS.			
No. 4 No. 5	36,000 27,600	1	1 1	Seventh Street and			
No. 6	106,300	1	1	Pennsylvania			
No. 7	61,600 99,000	1	1	Avenue NW Pennsylvania Ave-	356, 500	1	1
No. 8 No. 8 (stable)	6,500 40,500	i	1	nue, bet ween Thirteenth and			
No. 9	40,500 54,900	1	1 1	Thirteenth and			
No. 11	145,500 1	i	1	Fourteenth streets NW	787, 400	1	1
No. 10 No. 11 No. 12 No. 13	28,000 77,600	1	1	Ninth and K streets NW	846,000	1	1
NO. 14	180, 200 31, 700	1 1 1 1 1	1	ì			
No. 15 No. 16	31,700 51,400	1	1	Total	1,969,900	3	3
No. 17	196.600 i	1 1 1	1	STABLES.			
No. 20 No. 21 and No.	40,000	1	1	Parking commis-			
9 Truck	62,600	1	1	sion	42,000	1	1
No. 22 No. 23	48,500 54,900	1 1 1	1 1	Ambulance, Board of Charities	18.500	1	1
NO. 24	77, 100	i	i	Street-cleaning de-			
1 TUCK DOUSES:	107.500	1	1	partment District of Colum-	1,581,100	1	2
No. 1 No. 2.	107, 500 104, <b>200</b>	1	1	i dae earganeer de-i	900 700		_
No. 8 No. 4	64,600 52,000	1 1 1 1	1	partment	328,700	1	2
No. 4. No. 5.	29,600 53,500 118,000	Ī	1	Total	1,970,300	4	6
No. 7	118,000	1	1	WORKHOUSE			
NA 16 1	155,900	1	1	GROUNDS.			
ponse:				Superintendent's			
No. 1	16,000 75,000	1	1	house Wallingford house	36,900 20,200	1	1 1
No. 2 No. 3	54.4UU I	1	1	Wards, 1, 2, 5, 6, 7.	20,300 264.500	1	1
No. 5	41, 100 186, 300	1	1	Wards, 1, 2, 5, 6, 7 Receiving wards Nurses' home	267,300 39,000	1 1	1
No. 17. District of Colum-	100, 000	- 1	*	Greenhouse	4,600	i	i
bia fire fighter (boat)	117,300	1	1	Pumping station and deadhouse	183, 800	1	1
-				1			
Total	3,115,100	36	36	Total	816,400	7	7
	l Vor fraction	nel nest of	veer only		Water off		

<sup>1</sup> For fractional part of year only.

Water off.

TABLE 6.—Meters installed in various buildings owned and controlled by the Distric government—Continued.

Class of building.	Annual consumption.	Premi-	Meters.	Class of building.	Annual consump- tion.	Premi- ses.	Meters.
INDUSTRIAL SCHOOLS.				MISCELLANEOUS— continued. Automatic flush to			
Home for Aged and Infirm and In- dustrial Home				sewer—Contd.  N Street, be- tween New			l
School for Colored Children	Cubic feet. 1,781,100	1	1	Jersey Ave- nue and Fourth Street	Cubic feet.		
School	1 848, 900 2, 630, 000	1 2	4 5	NW Rock Creek Park, superintendent's	74,500	1	1
MISCELLANEOUS.	2,000,000			house	8,400	1	1
Asphalt plant	1 245,800	1	1	Total	4, 015, 200	15	19
Cement warehouse. Dog pound	14,300 15,100	1	2	RECAPITULATION.			
Lodge house, Brightwood Res-				Schools and an- nexes	36,603,000	148	157
Market master's	34,900	1	1	Fire-engine houses, etc	3, 115, 100	36	36
office	15,800 34,400	1	1	Police stations Public playgrounds Public convenience	3, 212, 600 509, 700	14 3	14
house	60,000	1	1	stations	1,959,900 1,970,300	3 4	3 6 7
wharf Naval Battalion	741,900	1	3	Workhouse grounds Industrial schools	2,630,000	7 2	6
wharfPublic library,	17,600	1	2	Miscellaneous	4,015,200	15	
Takoma Park Public drinking	11,400	1	. 1	Grand total	54,832,200	232	246
fountain	34, 900 89, 800	1	1				
Piney Branch Road	2,618,400	1	1				

<sup>&</sup>lt;sup>1</sup> For fractional part of year only.

TABLE 7.—Premises which receive an allowance of free water.

Names.	Num- ber.	Consump- tion.	Allowance.	Ex- ceeded.	Paid.	Meters.
Churches. Hospitals. Homes. Orphan asylums. Neighborhood houses. Schools.	22	Cubic feet. 3,320,800 12,389,100 4,100,000 2,426,800 77,500 2,454,100	Cubic feet. 5, 719, 851 9, 224, 721 4, 143, 645 2, 819, 700 784, 500 6, 569, 900	17 7 10 3	\$233. 04 1, 336. 24 315. 28 96. 88	99 13 27 14 4 13
Total	145	24,768,300	29, 262, 317	32	2, 187. 88	160

	Cubic feet.
Amount of water consumed	24, 768, 300
Amount of water used in excess of allowance	5, 419, 700
Total amount allowed free	19.348.600

Table 8.—Miscellaneous business establishments under meter, and amount of water consumed for the fiscal year 1914.

Miscellaneous business	7,500 cubic feet or less.		7,500 to 100,000 cubic feet		100,000 to 1,000,000 cubic feet.		1,000,000 cubic feet and over.		Total prem
establishments.	Prem-	Cubic feet.	Prem- ises.	Cubic feet.	Prem- ises.	Cubic feet.	Prem- ises.	Cubic feet.	fses of each class.
battoirpartments	- ii	45,900	389	20, 978, 100	373	608, 600 89, 947, 200 305, 800 4, 271, 500 613, 000 1, 686, 200 104, 700 3, 180, 600 280, 700	···ii	15, 674, 300	7
rt gallery akeries all ground	2				1	305, 800	<del></del> .	10,074,300	1
all ground	2	12,000	24	836,900	13	613,000			ļ
arber shops ottling works owing alleys			5	102,800	7	1,686,200			
MrDer shops	1 1	600 3,400	16	463,600	1 7 3	3 190 600			
wing alleys	1	0,100	ı	102, 800 463, 600 324, 900 8, 600	8-	380,700			1
rewerles			<u>.</u> .		3	380,700 1,539,100 527,600 1,818,400 146,200 2,701,300 1,717,500 223,700 2,177,100 2,622,300	3	13, 112, 500	1
meteries.  mb houses.  al yards.  atries.  rug stores.  rug stores.  ye works.  arages.  as works.  alls.  omes.	4	7,000 19,900	7 18	249,500 794,900 382,100 450,200 276,000 926,700	5	1.818.400	2	15, 806, 200	
al yards.	4	19,900	11	382, 100	1	146, 200		l	í
atries	1	3,600	9	450,200	9	2,701,300	2	3,046,500 5,054,600	l
ruz stores	****i	5,900	21	926,700	٥	1,717,500		5,001,000	
yo works			16	716,000	l i	223,700			
lorists	6	13,000	11 28	716,000 578,600 1,142,200 8,719,900 897,800 40,100	11	2,177,100	- <b></b>		
as works	2	55, 100	6	3,719,900		2,022,300			1
alls	6	24,500	12	897,800	4	877,700 386,800 187,500 14,374,900 1,814,900	1	4,019,700	1
ODES		• • • • • • • • •	1	40, 100	2	1 386,800	····i	1 082 800	
otels	i	400	85	1,896,200	43	14,374,900	14	1,082,800 38,641,800 40,822,500 19,905,600	l
se yards and plants			2	1,896,200 51,700 310,300	3	1,814,900	7	40, 822, 500	ł
aundries		6,800	6 5	310,300 296,500	9	4,009,400 416,200	10	19,905,600	1
anch rooms		0,000	83	1, 655, 200	10	2, 113, 100			ł
fachine shops	1	7,000	6	311,500	8	2,113,100 404,600			
omes, lotels. lotels. lotels and plants. sundries. umber and gawmills. unch rooms. lachine shops. larkets. larkets.	1	4,300 10,500	157	6,369,300	77	10, 429, 500 21, 726, 100	·····	15, 154, 100	١,
Packing houses Photograph galleries Pool rooms. Printing offices.		10,000		l	4	1 1.620.000	l	10, 101, 100	1 1
hotograph galleries			7	222,900	5	911,800 226,900			
rinting offices	1 1	12,700 4,500	1 7	129,800 360,900	10	226,900			1
age track affroads, offices and yards. aloons and restaurants.	<b>.</b>	4,000	li	30,500		2,100,000			
lastroads, offices and					١.		١ .	07 000 545	l
Jarus.	1	1, <b>2</b> 00 16, 300	300	178,700 14,380,500	61	1,902,100 9,055,700	3	1 299 500	: ا
		1 22,500	31	1,388,600	23	7,312,100	2	97, 699, 545 1, 299, 500 6, 710, 600	{ `
cientific institutions	. 2	5,700 25,900	33	126,000	19	375,900	····i		1
mall manufactories.	14	53,100	83	1,306,400 3,008,500	20	4,375,400 4,053,000		12,087,400	
PREMILEDORE OTHERS AND	1		1	1 ' '					
WDATVOS		3,300	1 2	60,400	5	1,717,700			
Stone yards Stores (miscellaneous)	40	1,500 148,900	164	108,800 6,006,900	31	293, 200 7, 604, 200		• • • • • • • • • • • • • • • • • • • •	1
Street railway stations and power plants. Telephone and telegraph	1	1 1	1	' '					1
and power plants	. 1	2,900	5	239, 400	12	3,898,500	1	1,000,500	1
exchanges	.	 	1	58,200	3	1,027,400	l <b>.</b>		1
Theaters	. 1	4,500	15	701,000	6	1,515,800			1
Turkish baths Undertakers	· ····		4	145, 200	1	465,000 190,700			
Warehomes	1 5	33,000	14	439,800	2	271,900	i	1,528,500	l
illes services	1 34	622, 117	ļ	ļ	<b> </b> -			<b> </b>	<b> </b>
Private medicionase (nri.	1	135, 500	203	6, 127, 900	37	2, 629, 300	2	4, 186, 200	١ :
vate meters)	30	130,000	78	1,042,900		2,020,000	<b>.</b> .	2, 100, 200	l '
			<u> </u>	<u> </u>				200 000 000	
Total	200	1,313,517	1,790	79, 242, 900	876	226, 644, 400	72	296, 832, 845	2,9

<sup>1</sup> These services accounted for in other premises.

 Total number of cubic feet consumed
 604,031,662

 Total value.
 \$246,019.64

 Average payment
 \$83,73

Norg.—While this quantity of water was consumed during the fiscal year, the last quarterly payment sees into the revenue for the next fiscal year.

## TABLE 9.—Miscellaneous work performed during the year.

Accounts audited	224, 370
Accounts posted and checked	79, 483
Accounts indexed	10, 889
Authority cards examined and filed	
	2, 512
Bills drawn for agents' lists	16, 212
Cards_canceled:	
Meter	129
Flat rate	348
Card records transferred to books	1, 745
Condo notinal	
Cards retired	8, 634
Changes made on records, ratings, etc.	6, 905
Changes of house numbers made on records	798
Curb cock and box locations recorded	3, 742
Curb cocks issued	1, 617
Cut-off orders made and recorded	8, 554
Cut-on orders made and recorded	
Delinquent notices made and compared	24, 360
Examination of service pipes recorded	2, <b>4</b> 01
Files indorsed and returned	232
Installation cards made, meter	7, 007
Letters and cards received	5, 022
Tetters and calus received	
Letters and cards sent out	15, <b>619</b>
Meter accounts canceled:	
Private	54
District of Columbia	75
Meter bills made and checked	50, 702
Meter computations made and checked	010, 102
Meter charges recorded	2, 340
Meters ordered out for various reasons:	
Private	449
District of Columbia	1. 201
Meter-repair slips from pump house recorded	1.407
Meter tests received and recorded	
Meter tests received and recorded	3, 791
New meter account cards made and checked	7, 381
New meter accounts opened:	
Private	134
District of Columbia	8,500
New schedule accounts opened	-,
	1,516
Notices of leaks to agents, etc.	7, 140
Notices to plumbers for meter tests	156
Permits for use of fire hydrants.	362
Permits for use of water for building purposes	1,629
Plats made	25
Plats made of tap locations	
	944
Plumbers' permits examined.	904
Refunds forwarded	296
Reports checked	7,026
Reports made, weekly	52
Service pipes lowered to grade	9
Street washers repaired or replaced	_
Street washers repaired or replaced.	10
FIELD WORK METERS.	
Meters taken out:	
Private	
Burst	10
Choked	21
<del></del>	
Not registering	236
For repairs	5
Leaking	76
Making noise	5
For test	93
Miscellaneous	3
	J
District of Columbia—	
Burst	11
Choked	67
Not registering	825
$C_{\alpha \alpha \alpha}$	-

## FIELD WORK-SERVICE PIPES, ETC.

Curb-cock boxes repaired, replaced, or reset Curb cocks repaired or replaced				84 5, 875
Hydrants repaired				173 5
Pressure regulators installed				9
Service pipes repaired				87
Table 10.—General info	<b>rmati</b> on.			
Average cost of installing a water meter by the department: Motes			\$4.90 2.21 3,43	
Cost of labor and material for maintenance of meters		· · · · · · · · · · · · · · · · · · ·		\$10.54 17,367.29 .41
Consumption of water through meters:			Cu	bic feet.
District meters	· · · · · · · · · · · · · · · · · · ·	· • • • • • • • • • • • • • • • • • • •	3	22, 644, 500 54, 832, 200
District meters. District meters in municipal buildings. Private meters. Private meters in charitable institutions.	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	6	04, 031, <b>662</b>
Private meters in charitable institutions	•••••••	• • • • • • • • • • • • • • • • • • • •	·····	24, 768, 300
			1,0	06, 276, 662
Meters in service.	In use June 30, 1913.	Installed, 1914.	Aban- doned, 1913.	Total.
District meters.  Pistrict meters in municipal buildings.  Private meters.  Private meters in charitable institutions.	230 3.051	8, 472 28 126 8	71 4 52 2	38, 621 254 3, 126 161
		8,634	129	42, 161
Total in use June 30, 1914	33,000	<u>                                       </u>	1	
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed b.  Average payment for premises in which private meters were installed b.  Revenue:  For metered water—  District of Columbia meters.  Private meters.  For flat-rate accounts—  Water for building purposes.	y the deps	\$18 22	34, 853, 16 28, 843, 69 89, 016, 10 3, 583, 20	413, 696. 85
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed b  Average payment for premises in which private meters were ins  Revenue:  For metered water—  District of Columbia meters.  Private meters.  For flat-rate accounts—  Water remts.  Water for building purposes.	y the deps	22	\$4, \$53. 16 28, 843. 69 \$9, 016. 10 3,583. 20	413, 696. 85 282, 599. 30
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed by Average payment for premises in which private meters were insulated by Average payment for premises in which private meters were insulated by Total revenue:  For metered water—  District of Columbia meters  Private meters.  For flat-rate accounts—  Water rents.  Water for building purposes.  Total revenues for the fiscal year 1914.	y the deps	22	\$4, \$53. 16 28, 843. 69 \$9, 016. 10 3,583. 20	413, 696. 85 282, 599. 30
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed b  Average payment for premises in which private meters were ins  Revenue:  For metered water—  District of Columbia meters.  Private meters.  For flat-rate accounts—  Water remts.  Water for building purposes.	y the depe	22	84, 853. 16 88, 843. 69 89, 016. 10 3, 583. 20	413, 696. 85 282, 590. 30 846, 296. 15
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed by Average payment for premises in which private meters were insulated by Average payment for premises in which private meters were insulated by Average payment for premises in which private meters were insulated by Private meters.  For metered water—  Private meters.  For flat-rate accounts—  Water rents.  Water for building purposes.  Total revenues for the fiscal year 1914.	y the departalled	\$18 22 22	84, 853, 16 88, 843, 69 89, 016, 10 3, 583, 20 	413, 696. 85 282, 590. 30 846, 296. 15 ————————————————————————————————————
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed b  Average payment for premises in which private meters were ins  Revenue:  For metered water—  District of Columbia meters.  Private meters.  For flat-rate accounts—  Water rents.  Water for building purposes.  Total revenues for the fiscal year 1914.  Water services:  In use June 30, 1913.  Installed 1914.	y the departalled	22	84, 853, 16 88, 843, 69 89, 016, 10 3, 583, 20	413, 696. 85 282, 590. 30 846, 296. 15 732 372 67, 104 190
Average cost of reading meters.  Average cost of computing accounts and making bills.  Average payment for premises in which meters were installed be average payment for premises in which private meters were insuled by a making bills.  For metered water—  District of Columbia meters.  Private meters.  For flat-rate accounts—  Water rents.  Water for building purposes.  Total revenues for the fiscal year 1914.  Water services:  In use June 30, 1913.  Installed 1914.  Water services in use June 30, 1914.	y the departalled	22	84, S53, 16 28, 843, 69 89, 016, 10 3, 583, 20 65,	413, 696, 85 232, 599, 30 846, 296, 15 732 67, 104 190 66, 914 42, 161

## DIVISION E.—Plans, estimates, and tests.

Siz: I have the honor to submit the following report of work done by division

E, "Plans, estimates, and tests," for the fiscal year ending June 30, 1914.

The work of the division is divided under two heads, "Tests and experiments" and "Miscellaneous drafting," in charge of H. D. Yates and C. P. Heins, respectively.

Report on the work performed by these subdivisions will be taken up seps-

rately and in the order indicated.

The subdivision of "Tests and experiments" is charged with testing and correcting the measuring apparatus used by the department; with making accuracy tests of all water meters to be used in the District of Columbia; with purifying the oil removed by the waste-cleaning machine: with making special

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tests of boilers and machinery as called for; with figuring the daily pumpage,

consumption, station duty, etc., and with keeping necessary records.

A brief summary of the tests made during the year is as follows: Water meters, ‡ to 6 inch sizes, tests for accuracy, 14,730; valves, ‡ to 30 inch sizes, tests for leaks, 1,281; corporation cocks, \(\frac{1}{2}\) to 2 inch sizes, tests for leaks, 2,248; curb cocks, \(\frac{1}{2}\) to 1\(\frac{1}{2}\) inch sizes, tests for leaks, 6,088; and pressure gauges tested and corrected, 76. Also made durability tests of small-sized water meters, acid and fluid tests of grease, accuracy tests of Venturi meter recorders, tests of pressure regulators, fire hydrants, etc., and overhauled Venturi meters, CO, recorder, and other testing and measuring apparatus installed in the pumping station.

Accuracy tests of the 10,000 finch Keystone water meters furnished under contract during the year were finished March 10, three days after the last ship-

ment of 284 meters was received.

During the year there were 1,060 gallons of oil removed from the material passed by the waste-cleaning machine and rendered fit for use in oil cups.

All of the coal burned at the pumping station during the year was bituminous coal, was purchased on the "ash, moisture, heat unit" basis. Samples were collected from each delivery, which was usually a 300-ton lot, and forwarded to the Bureau of Mines, where all tests were made. The analyses averaged 2.4 per cent moisture "as received" and 18.06 per cent volatile matter, 71.87 per cent fixed carbon, 1.57 per cent sulphur, 10.1 per cent ash, and 13,994 British thermal units per pound, on the "dry coal" basis.

The aggregate slip of all pumps during the year, as figured, based on pitometer

determinations, was 5.4 per cent, but this figure is not comparable with other pitometer determinations, as we have been applying corrections to the pitometer readings since last February, when division B found the scales furnished by the pitometer company to be incorrectly graduated. The correction constants

increase former determinations considerably.

The total pumpage for the year was 9,201,627,900 gallons, which is 165,651,800 gallons less than in 1912-13. The cost of operation was \$46,774.26, making the total operative cost of pumping 1,000,000 gallons of water into the mains \$5.08. This cost is approximately 8 per cent less than in 1912-13 and is due to a reduction in the item of "Repairs to boilers, etc." (which included the cost of the Crowe chain-grate stokers in 1912-13), all other items entering into the

operating expenses showing increases.

The station duty for the year was 73,854,582 foot-pounds per 100 pounds of al. This is 2.76 per cent greater than the duty obtained during the preceding year and represents an annual saving of 148.4 gross tons of coal. This saving was accomplished during the second half of the year and is in part due to the removal of scale from the boiler tubes, in part to lessening the radiation from tops of boilers by covering same with ashes, and in part to repairing covering on steam mains and the stoppage of leaks between steam mains and idle boilers. The work was begun during the month of December under the supervision of Mr. T. F. Ryan, several helpers and laborers being employed temporarily for the purpose. The station duty obtained during the second half of the year was 75.46 millions of foot-pounds as against 69.22 for this period of the preceding year, representing a net saving of 235.5 gross tons of coal.

The accompanying tabular statements show the sizes and makes of all private and municipal water meters tested during the year, and the operative cost of

pumping.

The normal force employed, in addition to Mr. Yates, in charge of this subdivision, consisted of 1 skilled laborer, 1 draftsman, 1 plumber, and 1 helper.

Cost of operating pumping engines at the District pumping station during the year ending June 30, 1914.

#### Operating expenses: Sa.

Salaries—	
1 chief steam engineer, one-half annual salary	<b>\$</b> 87 <b>5</b> . 00
3 steam engineers	<b>3,</b> 300. 00
3 assistant steam engineers	2, 425, 00
3 firemen	2, 200, 00
4 oilers	1, 983, 44
Miscellaneous per diem labor-boiler cleaners, substi-	•
tute firemen, steam fitter, electrician, helpers, and	
laborers	9, 232, 16

**\$20,015.60** Digitized by Google

Coal: 688,240 pounds bituminous coal, at \$3.27 per ton (corrected for deductions on account of B. t. u.'s and excess ash) 11,468,077 pounds bituminous coal, at \$3.35 per ton (corrected for deductions on account of B. t. u.'s and excess ash)	\$979. 84 17, 144. 92	
•		
Cost of coal chargeable to plant		\$18, 124. 76
Supplies:  Cylinder oil, engine oil, crank-case oil, grease, waste washers, lard oil, and graphite		2, 856. 90
Per diem labor	\$2, 507, 13	•
Material expended	3, 269, 97	
•	<del></del>	5, 777. 10
Total cost of operation		46, 774. 26
Total pumpage for the year, without allowance for slip_ga Greatest amount pumped in 1 day (July 23)	.do .do .do _feet	32, 206, 500 20, 098, 900 25, 209, 900 116, 99
Duty=Gallons pumped × 8.34 × 100 × dynamic head  Total fuel consumed.		<b>78, 854, 582</b>
Cost of fuel, pumping 1,000,000 gallons 1 foot high		
'Total operative cost of pumping 1,000,000 gallons	1 foot	1. 68
	1 foot cents	1. 68 4. 35 . 508

Notes.—The above items of supplies and repairs were furnished by the clerical division. The pumpage is figured from plunger displacement, without allowance for slip. The aggregate slip of all pumps during the year, based on pitometer determinations, is 5.40 per cent of the total displacement. The average dynamic head is figured from the total work done by pumping engines and generators. The fuel consumed is the total coal burned excluding the heating system. The cost of heating—569,740 pounds of coal—was \$852.06.

Tests of private and municipal water meters (excluding meters on endurance test) during the fiscal year ending June 30, 1914.

Meter.	Sise in inches.					<u>.</u> .				
	•	1	1	11	13	2	3	4	6	Total.
American Crown Empire Enarc.	113 3 2	1 2 4	12 7 12		2 20 1 6	6	4			115 60 12 24
Gamon Gem Hersey Keystone Kinz	1,843	77	4 2		20 2	6 9 2	6 7 1	4 2		1, 963 10, 648
Ambert Nash Nagara Pitisburg Disc Standard	114 1 1 14	57 161 19 13	11 115 13 14	6	11 65 21 5	4 54 18	5 6 1 5	5		200 400 75
Phomson. Prident Union. Worthington.	3 392 3 221	38 19 25 23	19 13 48 26		11 14	5 4 9	4	3	1	73 461 80 291
Total	13,392	442	296	6	187	122	45	16	1	14,507

The subdivision of "Miscellaneous drafting" is charged with work of preparing all plans and estimates and giving out miscellaneous information, correspondence, records, and reports. The detail of the work performed follows:

1. Drawings and tracing made\_\_\_\_\_\_ 1,536 2. Projects made\_\_\_\_\_ 135 3. Cards forwarded to the assessor\_\_\_\_\_ 371 4. Communications written \_\_\_\_\_\_1, 099 5. Foreman plats recorded\_\_\_\_\_\_ 6. Files forwarded to the assessor 119 7. Locations recorded, no plats necessary\_\_\_\_\_ 81 8. Permits passed (May 11, 1914, to June 30, 1914) 109

The above statistics show an increase of 35.7 per cent in the item numbered 1 over the figures for the previous fiscal year, while the item numbered 4 represents an increase of 96.6 per cent. Items numbered 2, 3, and 6, having to do with water main extensions, show decreases in numbers, the respective per cent

decreases being 22.4, 22.5, and 28.3. Item 5 shows an increase of 18.2 per cent. The increase in the number of drawings and tracings made was due principally to the fact that the paper tracings drawn up for levels for projects were included in the number together with the "intersection cards." showing mains, valves, etc., at street intersections. The work of constructing the latter was taken over by this division at the beginning of the year just ended. Here it may be said, that instead of recording the engineer's field notes in books and then making up the intersection cards, involving three operations, as was done last year, the engineer's notes, after being used in making up the cards, are bound in notebooks in a manner similar to that of the field notes for other work, making an appreciable saving in work and time. The increase in the number of foreman plats recorded, in view of the fact that the number of projects for water-main extension decreased, is somewhat remarkable, and may be accounted for by the large number of plats necessary to plot the work of replacing the large number of old hydrants with new ones.

Beginning January 5, 1914, not only formal letters, but reports, notes, and communications of every nature written by this division were included in the item numbered 4. This naturally increased the number of communications very

materially.

Besides the paper tracings for projects, the foreman plats, and the intersection cards, there were many mechanical and a few architectural drawings worthy of mention. The titles of the more important of these follow:

Maps showing mains in and about site of Anacostia pumping station.

Garage and shops to be erected on portion of property yard, Bryant Street. west of Second Street NW.

Storage house for iron to be built in rear of Bryant Street pumping station. Workshops for gardener to be erected in propogating gardens, Anacostia pumping station.

Trunk and feed mains supplying water-service areas.

Electric indicator to determine elevations of water in towers in the southeast county.

Surface and underground construction, Bryant Street pumping station and vicinity.

Surface and underground construction, Reno pumping station and reservoir.

Surface and underground construction, Brightwood Reservoir.

Sanitary drinking fountain.

Twelve-valve, 2-way.

Four-inch valve, 2-way.

New public hydrant.

Hydraulic motors applied to various large valves.

There were also some drawings of less importance showing smaller implements and pieces of apparatus used in the offices, in the field, or at other places

occupied by the department.

One of the most important duties of this subdivision is the plotting of the notes taken by the engineers of the department in the field. This work is described in the annual report of the engineer department for the fiscal year ending June 30, 1913, page 101. The only change in the work as there described is that now a title is placed at the top of the card, indicating the character of the work represented by the plat. The largest plat made in the past year was the one showing the 8-inch water main in Blue Plains, D. C., where approximately 1000 for the card, indicating the character of the work represented by the plat. mately 7,500 feet were laid.

The preparation of projects for water-main extensions, the sending of cards and files to the assessor, the writing of communications, the "locations recorded, no plats necessary," all of which are listed in the table beginning this report, are fully described in the annual report of the engineer department for the year ending June 30, 1913, page 101.

The property represented in the petition of the applicant is now shown in red crayon on the tracing. As this shows white on the blue prints, it is readily dis-

cerned by field parties and all others interested in the extension.

The giving of information to the public, the posting of the graphical log, and of the work-in-progress maps, and the plotting of "green connection cards" are described in the above-named report, page 102. The Anacostia pumping-station data has been plotted on the log since the station was put into operation as part of the first high-service record. The work-in-progress maps have been carefully checked in the course of the year to be certain that the information contained thereon is correct.

The photograph albums in the office of the superintendent have been posted

whenever there was occasion to do so.

The organization chart of the water department has been corrected four times in the course of the year, new prints made after the corrections had been

posted, and these distributed to the proper officials.

Due to the appointment of an additional assistant to the engineer commissioner, and the consequent reassignment of duties, a new organization chart of the government of the District was made. Blue prints of this were made and distributed.

The organization chart of the engineer department, made up in the previous year, was discontinued, because of the large number of changes in the several

departments, the posting of which was impracticable.

The work of computing and posting hydraulic heads from pressures taken on fire hydrants, of posting leak-gang reports and tapper's cards, and of checking the subdivision of parcel property is described, pages 102 and 103, of the report previously referred to.

The flat-rate method of charges for 8, 4 and 6 inch connections with water mains 12 inches or less in diameter, adopted two years ago, has proved an

equitable arrangement between the consumers and the department.

Several new 50-foot scale maps of the city and 100-foot scale maps of the southeast, northeast, and northwest counties have been made in the course of the year. As these maps have been completed, two tracings of each have been made and posted, one in the books of the water registrar's office, the other in the books of room 310.

Dilapidated map tracings have been replaced by new ones. The 50 and 100-foot scale maps and map tracings of this office, and that of the water registrar's and the 300-foot scale maps and map tracings of this office have been kept posted to date throughout the year. Several details of complicated intersections have been added to the 300-foot scale map tracings. There was added also to section 6 of both 300-foot scale map and map tracings, a portion of the District along the eastern shore of the Potomac River heretofore not shown. When the 8-inch water main was extended to serve the several institutions at Blue Plains, D. C., it was necessary to show this newly-added portion in order to plot the main on the maps.

in order to plot the main on the maps.

In the course of the year 24 sets of 300-foot scale blue prints (2 cloth and 22 paper sets) were prepared for distribution to the field parties, leak gangs, water registrar's office, etc. Service lines were placed upon them with yellow crayon, and the several sets segregated before the prints were distributed.

The work of copying, onto the permanent cloth records, old maps drawn many years ago has been carried on throughout the year when the more important work would permit. The copies made are checked thoroughly, before the old maps are destroyed, in order that no information contained upon the latter would be lost during the copying.

The system for recording time and for distributing work in the division, which has been in use throughout the fiscal year just ended, has been very successful in its operation and results. A complete description of the "time books" and "work assignment board" may be seen in the report of this division, pages 103 and 104 of the annual report of the engineer department for the fiscal year ended June 30, 1913. Since that time a new and larger board has replaced the old. This was made necessary by the increased number of men in the division.

In the same report, page 104, there is a description of the work of passing schedules of work to be done by the surface department. This work has been in progress at times throughout the year.

The index, which has as its object the assignment of a single name to each

of the named alleys of the District, is very near completion.

On January 5, 1914, the printed pamphlets containing a brief description of the "water supply, purification, and distribution systems of Washington, D. C." were received from the press. The data for this booklet was compiled by this division from the most authoritative sources and to show the latest available data. Beginning with a description of the intake at Great Falls, the text describes in relative order the conduit, the sedimentation reservoirs, the Washington Aqueduct tunnel, and the purification plant followed by a description of the distribution system with its pumping stations, reservoirs, etc. Next in order is a chapter of brief paragraphs, each of which cites some fact of interest concerning the waterworks of the District. A brief historical sketch of the purification works is next presented, followed by a concise statement concerning the "pending projects for increasing the water supply of the District of Columbia." A double page plate in the center of this interesting booklet illustrates, graphically, the elevations supplied by the different water service areas. The last of the 16 printed pages contains recent statistics concerning the distribution system. It is hoped that this booklet conveys the information it contains in a clear and concise manner, both to the engineer and to the layman, and it is believed, from the comments of those who have already received it, that the benefits to be derived from the instructive and useful information which it contains more than compensates for the expense of its compilation and publication.

The fire-hydrant index book, containing the locations, elevations, dates of setting, and make of all fire hydrants of the District, together with the respective job numbers under which they were set, has been completed and is now kept posted to date as new hydrants are placed.

The index for miscellaneous maps was carefully checked in the past year, and the work of indexing the miscellaneous drawings has been kept up to date.

The index of samples of earth taken from excavations made by the construction gangs in various parts of the District was completed in the course of the year.

The cost sheet, posted monthly by this division from data compiled by division F. was discontinued because of the impracticability of readily obtaining the

necessary data under the new system of cost keeping.

The reorganization of the department, which occurred at the beginning of the past fiscal year, affected the work of the subdivision somewhat. The making up of cards showing valves, mains, etc., at street intersections (intersection cards) and the keeping of the field notes for this work, together with the posting and correction of the 50 and 100 foot scale maps, was taken over by this subdivision. With this work came also the answering of requests for information relative to cut-offs in the water mains made by leak and construction gangs, pitometer division, etc. In order to carry on this work two assistant draftsmen were transferred to this subdivision from the division under which this work was previously performed.

Another phase of the department's work fell to this division by the removal to other positions of the men who previously performed the work. This includes the care of catalogues and index, the writing of the morning report showing the location of the construction and inspection jobs under way, and the daily computation of the data for posting the graphical log. These latternamed duties were taken over without adding to the personnel of the subdivi-

There have been several interesting and instructive diagrams made in the course of the year. The names of these follow:

Charts showing hourly consumption on gravity service as recorded by Venturi meters on Fourth Street NW.

Diagram, maximum and mean consumption, third high service, from July, 1909, to May, 1914.

Diagram, water rents and consumption per day, 1898-1913.

Chart, actual and estimated monthly receipts and expenditures of the water department.

Elevation diagram showing territory supplied by the different water-service areas of the District.

Functional and expense diagram, year ending June 30, 1913.

The work of passing permits for copings, driveways, retaining walls, etc., is somewhat similar in nature to that of passing surface-division schedules. When a permit is granted for the construction of a driveway, coping, etc., this division ascertains the location of water valves, mains, etc., in the vicinity of the proposed construction. If there is no interference with the underground construction, the permit is rendered "passed" by this division for the department. At the beginning of the year it was proposed that a bulletin be printed each

At the beginning of the year it was proposed that a bulletin be printed each week setting forth the work of the department, together with facts of interest and matters of a personal nature. This bulletin, while not adopted by the department as a whole, was begun by this division. It has taken the form of a typewritten sheet or sheets, depending on the length of the subject matter presented, and contains the personnel of the division, a brief statistical summary of its work for the previous week, and paragraphs devoted to the work and pleasure of its members. The bulletin has often presented articles for the instruction, welfare, and betterment of all who read it.

The drawings and specifications of the garage and shops, completed in the early part of the year, were later revised and corrected. It was decided to exclude the garage from consideration at this time, building only the shops. This set of drawings consists of 10 sheets, 24 by 36 inches, and 7 sheets of full-

sized details.

To devise a method for protecting the edges of the 50 and 100 foot scale maps from the constant hard usage, a band of gummed tape was placed around the border of a few of them. This work was done only when the rush of more

important work permitted.

The lockers in room 310, 310½, and 312, arranged in rows about the walls of these rooms, were in the way, and in order to place them in a more advantageous location and in order to utilize fully the surplus space in room 314 taken over in the course of the year by Mr. J. S. Garland, it was decided to divide the latter into two parts, reserving one part for Mr. Garland's office and using the other part as a locker room. Acting upon this decision, this division prepared plans for the work, which was executed under the direction of the assistant superintendent of the District Building. Plans for the arrangement of the lockers in the locker room were drawn by this division. Bases were designed for the several tiers of newly placed lockers to permit of better ven tilation of the two rooms. Where it was necessary to divide tiers of lockers new sides were made. Besides the sketches which were drawn for the above work, this division performed the actual work of taking down, removing, and reassembling the lockers. The locker room now contains the lockers used by the members of the water department on the third floor of the District Building.

The statements describing the routine work of each member of the division made up at the beginning of the previous fiscal year, have been revised and now

present the descriptive subject matter in greater detail.

By numbering all of the trunk water mains of the District it was proposed to compile them into the form of a directory, whereby they would all be numbered, described, and the routes which they followed noted. The proposed directory became so very complicated that the idea was abandoned as impracticable.

To facilitate the work of receiving messages over the telephone and sending communications, both inside and outside of the office, which invariably assumed the same form, printed forms were designed by this division and printed by the water department press for the use of the division and for the whole department. Formerly much time was unnecessarily consumed in writing out the full statements which were received over the telephone, while now the parts of the statements which are unchanging are in printed form and it is necessary only to fill in the variable data. It is obvious that time is not only saved by the parties at either end of the line, but that the line itself is the sooner opened for other messages.

Whenever information as to the location of water mains, the water pressure etc., is given over the phone, the name and address of the person is taken and a post card containing the same information is subsequently mailed to the person in order to eliminate the chance of an error. Two styles of post-card forms were printed to be used for this purpose. There were also made up and printed six other labor-saving forms, five for the use of this division and one for the

use of the entire department. They have all proved of great value.

A large framed map of the water mains at the Bryant Street pumping station and vicinity, hanging on the wall of the station, drawn up a number of years ago and consequently somewhat out of date, was brought to this office and

posted to date. The same careful style of work which characterized the original map was used in making the corrections and additions. When the posting was

completed the map was returned to its place at the station.

At the request of the assistant to the engineer commissioner this division compiled a statement of projects for water-main extension. Under three titles were given the number of feet and size of the proposed mains, and the estimated cost of each extension. The three heads under which the projects were grouped were (1) showing water-main extensions under construction: (2) showing water-main extension applied for and approved, but construction as vet not begun: (3) showing water-main extension pending approval.

A statement concerning the average cost per item of the plats, projects, etc.,

made by the division follows:

Plats for job No. 2556 (drains to hydrants)	\$0.464
Plats for job No. 304 (valves in place of old)	. 506
Plats for job No. 306 (fire hydrants in place of old)	. 510
Plats for miscellaneous work (assessment and deposit jobs)	
General average for all plats 1	. 575
Projects for water-main extension	. 984
50 and 100 foot scale water-main maps	
50 and 100 foot scale water-main map tracings	1. 312
Intersection cards	. 948

Other work carried on by the division of a general nature which need only be named includes miscellaneous lettering and typewriting, revising and correcting miscellaneous maps and blue prints, and indexing and correcting miscellaneous drawings.

The number of men in the subdivision, including the one in charge, was 10,

an increase of 1 over the personnel of last year.

The vast amount of detail and special work prepared by division E was made possible only through the complete and harmonious cooperation of the men in the division, of whose work I can not speak too highly. In closing my report, I wish to take this opportunity to give the credit due them and officially thank them for their willing and efficient assistance.

Respectfully submitted.

FREDERICK W. ALBERT. Assistant Engineer.

The Superintendent, Water Department.

## DIVISION F .- Accounting and stores.

Siz: I have to submit the following summary of the work done by the division of accounts and stores under my charge for the fiscal year 1914:

## ACCOUNTS, JOB COSTS.

On July 1, 1913, a number of changes from the old method were introduced in this branch to avoid all duplication of work and provide a simple, accurate method of keeping cost accounts. With this end in view a printed chart, showing the ordinary activities of each division, with corresponding job numbers, was issued for the information and guidance of all employees in making accurate returns for labor and material expended on work. As the accounts of the department had heretofore never included the indirect cost of work properly chargeable on account of departmental and divisional superintendence, distinct accounts were opened to cover these items, and when their percentage relation to the work of the department was ascertained the various accounts were given their proper burden of overhead charges.

The expense account and other tables prepared by this division for publication in your annual report are completed and show that the department expended during the fiscal year 1914 for labor and material \$802,025.35. The statement

following shows the miscellaneous clerical work accomplished.

<sup>&</sup>lt;sup>1</sup>The great reduction in the average cost per plat, compared with the figures for the previous fiscal year, is attributed to the increased efficiency of the draftsmen and to the fact that the cost of recording the work shown on the plats upon the map tracings (averaging 40 minutes per plat) was excluded from the estimates.

<sup>3</sup>The time upon the 50 and 100 foot scale maps could not be computed.

Number of papers received and forwarded in water department, July 1, 1913 to June 30, 1914.

Vouchers forwarded	
Requisitions made Letters mailed	
Cards mailed	203
Official letters written	
Work orders issued	1, 321
Files received and forwarded	
Pay rolls forwarded	
Miscellaneous papers received and forwarded	<b>53</b> , 632
Records made on cards	
Letters filed	
Transfer vouchers forwarded	456
rotal	66, 509

## ACCOUNTS, STOREKEEPING.

In this branch the whole system of stores accounting was changed, and for the first time in its history the department is now able to render a daily balance showing the total value of all supplies and equipment on hand and in use. To show in detail the work accomplished by the stores branch of this division the following is taken from the annual report of the stores clerk, Mr. William V. Robertson, whose work entitles him to the highest commendation:

"There have been prepared and forwarded 112 requisitions, averaging 27 items each.

"There were received and issued water-main accessories, as follows:

•	Received.		Issued.	
	Quantity.	Value.	Quantity.	Value.
Pipe, 3 to 48 inch	990 2, 914 959 7, 791 8, 599 346, 811 2, 618	\$80, 143, 57 19, 698, 61 10, 393, 55 4, 890, 90 10, 255, 06 2, 038, 00 9, 459, 20 17, 340, 55 104, 72 49, 525, 00 8, 374, 32	94, 764 889 3, 356 977 7, 803 3, 989 506 311, 144 6, 3272 9, 505 7, 773	\$72, 076. & 18, 352. 31 11, 943. 07 4, 963. 72 10, 265. 22 2, 271. 12 16, 357. 10 15, 557. 31 46, 600. 30 8, 394. 94
Total		212, 223. 47		206, 963.0

"In addition to the above there has been received and issued large quantities of miscellaneous hardware and plumbing supplies, engine-room and boiler-room supplies, stationery, furniture, paints and oils, fuel, electrical supplies, stable supplies and forage, lumber, foundry supplies, automobile supplies, etc.

"During the year there has been collected, broken up, stored, weighed and delivered to the contractor old material, as follows:

	Quantity.	Value.
Cast-iron scrap. pounds. Wrought-iron scrap. do. Cast-iron borings. do. Oil barrels.	449, 513 40, 801 20, 640	\$1,910.5 173.40 51.60
Oli barreis. Miscellaneous, cable, hose, etc	2, 386 33	51.60 15.00 91.00 1,144.60
Total		3, 386.11

"During the year there was recovered from the scrap pile, lead and brass, as follows:

	Quantity.	Value.
Lead. pounds. Brass do	15, 064 9, 006	\$753.00 900.20
Total		1, 653. 68

"The value of supplies on hand, not including tools and equipment, at close of the year June 30 was \$162,476.32. The value of tools and equipment owned by the department, in use and stored in storerooms, at close of year was \$485,556.01. The total accountability of this subdivision at that time was \$448.032.33.

"There has been installed during the year a complete modern business system of storekeeping and property accountability, the object of which was to provide sufficient safeguards for the care of materials and equipment, and at the same time increase the efficiency of the employees. Warerooms were equipped with bins which embody the most approved methods for the handling of miscellaneous supplies, such as are carried in stock by the department.

"All supplies on hand were assorted, the obsolete and unserviceable condemned and sold, and the serviceable classified and stored in bins. An inventory of all property, except real property, owned by the department, including tools and equipment in use, was taken, and an account opened with each article. These accounts are a perpetual inventory of quantity and value of all material and tools owned by the department.

"A personal account is kept with each individual having possession of department tools. These personal accounts are a perpetual inventory showing

quantity and value of tools in possession of the individual.

"A daily statement is rendered to the superintendent showing the value of materials and tools on hand at the close of the business each day."

The employees of this division have ungrudgingly given the department their best efforts. I deeply appreciate the loyal support they have given me.

Very respectfully,

SAMUEL RIGGS, Clerk, in Charge of Division F.

The Superintendent, Water Department.

## DIVISION G.—Steam engineering and shops.

Sin: 'The following is a summary report of work done at the district pumping station during the fiscal year beginning July 1, 1918, and ending June 30, 1914:

Water pumped, figured from plunger displacement:	
First high service	6, 233, 559, 000
Second high service	2, 253, 845, 000
Third high service	714, 096, 000
Total	9, 201, 500, 000
Coal burned	
	tons 5, 683
Coal burned	tons 5, 6\$3 _gallons 510 do 968
Coal burnedCylinder oil used	tons 5, 683 _gallons 510 do 968 _pounds 347
Coal burnedCylinder oil usedEngine oil used	tons 5, 683 _gallons 510 do 968 _pounds 347

The regular force employed for the operation of the pumping engines, boilers, and auxiliaries, cleaning of machinery, etc., is as follows:

	Steam engineers.	Assistant steam engineers.	Firemen.	Oilers.	Cleaners.	Laborers.
Sunday Week days	3 8	3	3 3	4	4 4	4

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For the fourth high service the water is pumped from the Reno Reservoir (which is supplied by the third high-service pumps) to an elevated tank by gasoline engines and triplex pumps. This machinery is operated daily by the watchman is charge of the reservoir, and one assistant on night duty. The water pumped for this service during the year is 54,900,475 gallons, or a mean of 150,000 gallons daily.

During the early part of the fiscal year work was completed at the Anacostia station and the engines and pumps were started on regular service September 29, 1913, pumping to the three water towers supplying the area east of the Anacostia River. This station is taken care of by two men.

The water pumped from September 29, 1913, to June 30, 1914, figured from plunger displacement, follows:

First high service\_\_\_\_\_\_ 83,086,800 Total\_\_\_\_\_\_ 86, 688, 972

Or a mean of 316,000 gallons daily.

The work accomplished during the year is as follows: All necessary repairs for the machinery at the District pumping station, fourth high service, and Anacostia stations; repairs to automobile trucks, etc.; made practically all repair parts for fire plugs, valves, street hydrants, etc., including all tools used on the work of laying water mains, etc., such as picks, chisels, breakers, caulking tools, yarning irons, valve keys, wrenches, pipe bands, eyebolts, arch irons, and miscellaneous tools and appliances as required for the various work; erected machinery at Anacostia station; made 48-inch pipe cutter; repaired dirt rammer and pipe-cutting machines; made new bearings for printing press for water register; made 3 gasoline tanks for engines at Anacostia; repaired Avery coal scales; fitted up valve operators and installed same at First and B Streets and New Jersey Avenue and L Street; made repairs to Coggswell fountain; rebuilt 1 automobile; took crane trolley apart for shipment; made repairs to elevators; repaired Crowe stokers; put new tubes in bollers as necessary; repaired diaphragm pumps; repaired heating system, drinking and horse fountains; fitted up battery of meters at First and K Streets NE.; built concrete vault at New Jersey Avenue and L Street; made tools and erected Hendey lathe and boring mill in shop; erected hoist in machine shop; built twenty-seven 3-way and eighty-four 4-way valves, 6 and 8 inch bells, two hundred and two 8-inch and four hundred and forty-two 6-inch 2-way gate valves; repaired valves as follows: Ten 3-inch, forty-seven 4-inch, twenty-one 6-inch, twenty-three 8-inch, two 12-inch, fourteen 3-way, eleven 4-way, one 20-inch, five 24-inch, and two 30-inch. total, 136 valves; repaired 12 McClelland fire hydrant standpipes; reversed bells on 54 fire hydrants; tested 2 of each shipment of valves for interchangeability; drilled and tapped 305 pipe bonnets; drills 137 pairs of pipe bands: bored out 12 street-hydrant knobs; made 816 air valves for fire plugs; machined 50 waste valves for fire plugs; made 12 nozzles for fire plugs; made 66 brass operating screws for valves of various sizes; bored and tapped forty-four 4-inch plugs for blow-off connections; cut pipe and nipples for storekeeper; put handles in dirt rammers; repaired 24 Buckeye burners; repaired 1,818 water meters: repaired and sharpened Smith cutters and paper-cutter blades; and completed numerous small jobs necessary for the expedition of the work of the department.

During the year all composition metal castings for valve work, repair parts, etc., have been made in our foundry, which has been operated without interruption; there were made in the foundry 145 aluminum street signs and brass

hangers for the electrical department.

The blacksmiths have made 52 curb and extension keys, 210 new chisels, 136 caulking sets, 117 meter-box keys; made and sharpened 251 drills; repaired 386 stakes; sharpened 7,320 chisels and 11,972 picks, and welded new ends on 982 picks; repaired 115 curb and extension keys; made and repaired 19 frost pins and 70 casing hooks; made 50 breakers, pipe hangers, and bolts; repaired 98 tunneling bars; made 137 pair of pipe bands of various sizes; made irons for new tool wagons, hook rods and plates, tongs, angle irons, drift pins. wrenches, tappets for fire plugs, yarning irons, swedges; repaired lawn mowers; sharpened mattocks; and made repairs to wagons and automobiles.

The carpenters have built office for storekeeper, bins in storeroom and basement, and racks for stationary room; built tool wagons; repaired watch boxes; made ladders and tripod derricks; made work assignment board, scaffolding for janitor; repaired sash and roof in boiler room; repaired roof of station; built tool chests, map cases, drawing boards, cardcases, bookcases, desks, battery boxes, forms for concrete work; built concrete vault for exhaust pits at Anacostia; made forms for Venturi meter pit, at Fourth and Bryant Streets; laid concrete floor at Anacostia; built storage house for iron; built racks and trough for blue-printing room; repaired brick pier in stable yard; repaired gates and floors in west yard; made concrete anchors for cranes; built chimneys and repaired roof in blacksmith shop; repaired stalls and floor in stable; repaired skylight in Reno tower; made one thousand five hundred and eighty-eight 8-inch cement rings, six hundred and thirty-seven 4-inch cement rings, five hundred and ninety-nine sectional rings; filled 971 casing covers; roughed 886 casing covers; filled eighty-seven 24-inch manhole covers; and made twenty-nine 3-foot rings.

The painters have painted crane, engines, and pumps at Anacostia, auto trucks and wagons, shelving and office storeroom, mixed color for fire plugs, painted crane at Bryant Street station, painted water main on Aqueduct Bridge-pipe at Benning and College Pond, pipe at K Street and M Street Bridges, cleaned and painted pipe on Pennsylvania Avenue Bridge, painted motor and pipe in pump pit at Union Station, painted interior of leak house, varnished doors and painted sash, balcony, and girders at Bryant Street station, painted bridge at Langdon, painted fences around yard at Bryant Street Station, Reno, and Anacostia, and three water towers; painted woodwork at Brightwood lodge, Reno, and Anacostia stations; filled and varnished instrument boxes, cabinets, desks, and battery boxes; replaced necessary window glass, covered steam piping with asbestos, lettered oil cans, assignment board, signboards, number boards, map holders, and made and repaired curtains and cushions for wagons, autos, and buggies.

The electricians and helpers have taken care of generators, switchboards, motors, lights, etc.; operated conveyor, economizer scrapers, and crane; tested and charged batteries, repaired electric fans, installed conduits and wiring for lights in basement and storeroom, crane, meter pit at Fourth and Bryant Streets, lights in blacksmith shop, and connected motors for boring mill and iathes; installed switchboards at Anacostia and Bryant Street stations, made repairs to telephones, tamping and pipe-drilling machines; wired autos, installed signals on elevators, soldered oil cans, etc.; installed ventilating apparatus at Union Station pump pit, and made repairs to gauges on water towers; repaired

storage batteries.

The janitor and his force have taken care of all cleaning throughout the building, removing shavings from the wood-working shop; turnings, scrap, and other débris from the machine shop, attended to the window cleaning, water coolers, messenger service to the office, etc.

Respectfully submitted.

JAS. T. FINK, Chief Steam Engineer.

The SUPERINTENDENT, WATER DEPARTMENT.

Table I.—Statement of cash account of the water fund, District of Columbia, for the fiscal year ended June 30, 1914, as shown by the books of the auditor of the District of Columbia.

Balances July 1, 1913:		
In Treasury of the United States	\$54, 033. 08	
In hands of the disbursing officer, District of	•	
Columbla	7, 000. 00	
In hands of collector of taxes, District of Co-		
lumbia		
-		<b>\$</b> 61, <b>2</b> 18. <b>29</b>
Receipts:		
Water rents	646, 296, 15	
Taps and stopcocks	6, 118. 20	
Water main assessments, principal	81, 314, 34	
Interest on same	5, 064, 87	
Sale of old material	4, 253. 20	
<u>.</u>		<b>743, 046. 76</b>

Repayments:		
Cash—		
Salaries, revenue and inspection branch, 1914_ Salaries, distribution branch, 1913	\$0. 83 19. 83	
High service, 1913	42. 06	
High service, 1914	5, 247, 23	
Transfer vouchers—		
Salaries, distribution branch, 1913	5. 51	
Salaries, distribution branch, 1914.	<b>51.33</b>	
High service, 1914	18, 764. 58	
Contingent expenses, 1913	. 27	
-		\$24, 131.64
		828, 396.69
Expenditures:	•	
Appropriations, 1914—		
Salaries, revenue and inspection branch	31, 100. 00	
Salaries, distribution branch	50, 499, 54	
Contingent expenses.	4, 358. 73	
General expenses	31, 434. 10	
High service	650, 163. 34	
Refunds	1, 993. 90	
Reimbursement to the United States on ac- count appropriations for the extension of		
water mains	20, 000, 00	
-		789, 549, 61
Appropriation, 1918:		
Contingent expenses	482. 52	
General expenses.	4, 881, 03	
High service	39, 00	
-		5, 402. 55
Total cash expenditures for the year		794, 952. 16
Balances June 30, 1914:		
In Treasury of the United States	24, 907. 98	
In hands of disbursing officer, District of Co-		
lumbia In hands of collector of taxes, District of Co-	8, 136. <b>54</b>	
lumbia	400, 01	
-		33, 444. 53
•	_	828, 396, 69
July 1, 1914:	•	
Balance to credit as above	33, 444, 53	
Transfer from surface department made after	00, 111. 00	
June 30, 1914	1 080 00	
Juit JU, 1012	1, 050. 90	84, 495, 43
Outstanding liabilities close of business June 30,		04, 480. 10
1914	97 900 10	
Unexpended balances of appropriations for 1918	27, 209. 10	
and 1914 not available for 1915 expenditures	£ 990 70	
	6, 339. 70	
Balance available July 1, 1914	946. 63	04 408 49
<del>-</del>	<del></del>	<b>34</b> , 495. <b>43</b>

TABLE 11.—Cost of work done by the water department during the year ended June 30, 1914.

		1		E		Charge	Charge to general account.	account.	
	Heads of expenditure.	Fer diem and salaries.	Material expended.	Total expendi- tures.	New work.	Operating expenses.	General repeirs.	Replacement of old work.	Trans- portation secount.
-8	Pitometer division (detection of leaks). Water mains laid	\$32,053.37 61,780.78	\$6,550.63 137,921.00	\$38, 613.00 199, 710.47	12, 306. 20 199, 710. 87	\$35,307.71			
m 4.	Street hydranks and fountains erected. Replacement of fire hydrants, valves, casings.	16,886.6	1,687.07	58, 519. 24	788.50	<u>::</u>	\$134.90	\$68, 884. 34	
90	Maintenance and repair of valves. Maintenance and repair of fire hydrants.	2,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5	3,210.8	17, 18, 18, 18, 18, 18, 18, 18, 18, 18, 18		3,237.2	4,7,9 2,66,9 2,99,9	<u>::</u>	
- 00	Maintenance and repair street hydrants and fountains  Leak service.	17,787,58	5,044.14	2,26		2, 419.58	2,781.71	S	
2	Maintenance and repair of reservoirs.	8,918,93	2,114.12	11,032,15		11,082.16	**		
12	Department stables and transportation account Operating and repair of pumps, Bryant Street station	2,765.52	26,015.28	25, 671. 28 40, 810. 73		43,615.62	6, 196. 11		535, 671. 20
27	Operating and repair of pumps, Reno station	1, 801. 27 2, 868. 66	2,880.23	5,751.80		5,512.93	128.57		
25	Care of District pumping station	2,780.07	3,604.11	13,364.18		11,838.07	1, 536. 11	•	
22	Shopwork.	<u> </u>	26,917.68	54,500.28	64, 500. 28			,,204.18	
200	lons	2,684.	6,911.64	11,506.28	10,673.76	•	922.52		
18	New equipment and machinery	1,385.54	6, 986.78	8,372.30	8,372,30				
<b>F</b> 8	Anacostia pumping station.	3,006.56	2,122.73	10,120.28	10, 129, 28	٠			
18	Auscentaneous nears, toots, etc Installation of meters, maintenance and repair thereof		60, 139, 56	103,610,20	86, 242, 91	13,692.84	3.674.45		
7	Office of the water registrar	3	4,900.18	50,313.96		50,313.86			
88	Inspection and repairs to services	26,477.26	3,201.05	2,786.28	3,155,11	158.70	42, 609. 58		
S	Tapping water mains		1,761.78	7,724.56	7,724.56				
	Gross expenditures.	424, 282, 17	877,743.18	802, 025. 35	397, 781. 14	204, 754. 70	97,176.77	96, 641.36	36,715.29
		SUMMARY.	tY.						
Exp	Expenditures: Per diem pay rolls. Salary pay rolls.	\$342, 683. 47 81, 598. 70	harged to- New work Operating	expenses		Charged to— New work Operating expenses		ŠŠ	781.14 61.5 754.79 26.7
	Total, services.	424, 282, 17 377, 743, 18	Replaceme	peurs ent work				કુંફ્ર	
•	Gross expenditures. Less transportation credit.	802,026.28 35,671.20							
,	Net expenditures	766, 354. 06						766, 354. 06	4.06 100.0

Table III.—Statement of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work.

	In service June 80, 1913.	Laid during year ended June 30, 1914.	Abandoned during year ended June 30, 1914.	In service June 30, 1914.
75-inch diameterlinear feet	600			600
48-inch diameterdo	94,1/2			1 22,1/2
42-inch diameterdo	23		<u>.</u> .	
36-inch diameterdo	59,051	21	5	59,0
30-inch diameterdo	53, 227	4,784	16	57,995
24-inch diameterdo	21,666	4,737	5	26,394
20-inch diameterdo	97,035	1,838	2	98,9%
16-inch diameterdo	16,219	0.000	040	16,219 359,606
12-inch diameter	350, 542	9,396	240 10	9,109
8-inch diameterdo	9,110 675,711	69,985	731	744,965
6-inch diameterdo	1, 474, 113	3,942	6,321	1,471,734
4-inch diameterdo	151,749	2,263	1,659	152.323
3-inch diameterdo	78,779	1,477	1,021	79, 235
Total	3,031,997	98,460	10,051	3, 120, 406
Stop valves		893	209	9,302
Fire hydrants	3,166	506	383	3,289
Public hydrants	204	13	6	211
Sanitary fountains				' 11
Horse fountains		6	2	152
Public wells (deep)			1	44
Public wells (shallow)	9			9

TABLE IV.—Statement of the length and cost of water mains laid from July 1. 1878, to June 30, 1914, paid out of water department funds.

	In service June 30, 1913.	Laid during year, June 30, 1914.	Total laid to June 30, 1914.
inch diameterlinear feet	76,522	106	76,629
i-inch diameter	114,036	1,546	115, 582
inch diameterdo	1,078,797	3,441	1,062,238
inch diameterdo	627,018	66, 526	693,544
0-inch diameter	6,735	6	6,741
2-inch diameterdo	309, 430	9,353	318,783
6-inch diameterdo	16, 257	,8	16, 265
70-Inch diameter	86, 950 9, 757	1,838 4,737	88,78
00-inch diameter do	15,653	4,784	14,494 20,437
86-inch diameterdo	36, 291	7,721	36,312
2-inch diameterdo	23	· • •	2
8-inch diameterdo	14,309	•••••	14,300
Total	2,391,778	92,366	2,484,144

Total cost to June 30, 1913. Total cost for year ended June 30, 1914.	\$3,394,601.74
Total cost for year ended June 30, 1914.	199,710.87

Table V.—Statement of the average cost per foot for laying water mains for the year ended June 30, 1914.

Linearfeet.	Cost for labor per linear foot.	Cost for material, cuts to pavements, etc., per linear foot.	Total cost per linear loot, laid.
1,093	\$0.470	\$0.840	\$1.310
01,135	450	1 575	1.340 2.234
1.820	1.107	2.518	3.625
4,687	1.746	3.840	5. 596
4,765	1.736	4. 603	6. 339
	1, 093 61, 138 9, 149 1, 820	Linearfeet. labor per linear foot.  1,003	Linearfeet. Cost for labor per linear foot.    1,093

NOTE.—Excessive cost of 4-inch mains due to having been laid in short sections in alleys, necessitating additional cost.

## REPORT OF THE SUPERINTENDENT OF SEWERS.

WASHINGTON, D. C., September 18, 1914.

SIE: I have the honor to submit the following report of the sewer division, engineer department, District of Columbia, for the fiscal year ending June 30, 1914:

DIVISION A.—Drainage studies, plans, engineering data.

Studies on the future development of the sewerage system for a number of new trunk lines, as well as important extensions, included during the year sanitary drainage for the upper Potomac areas to and including the valley of Falls Branch, where plans have been developed for the diversion of all of this sewage, now discharging through the Government reservation at the Dalecarlia Reservoir, into the State of Maryland, around the easterly border of the reservoir to the sewage-disposal system of the District of Columbia and connnection at Chain Bridge with the proposed upper Potomac interceptor. In the upper valley of Falls Branch drainage studies were developed to provide for all territory as far as the District line at Wisconsin Avenue and eastward therefrom. In the upper Rock Creek Valley drainage studies were completed for areas north of Broad Branch Road on the west and for the area northward from Luzon Avenue on the east, as well as for the main interceptor system in this valley to the District line. Drainage studies in the Anacostia River Valley included a study of substantially the entire area from Bennings to the District line on the east, and on the west studies for the northerly portion of Brookland, for Woodridge, and adjacent subdivisions. The plans for the development of the combined system of sewerage included areas in Rock Creek and Piney Branch Valley, as well as trunk outlets and connections along the upper Potomac and along both sides of the Anacostia River in connection with the river improvement, where studies have been completed for all outlets as far as Bennings Bridge.

Plans for the sewerage system were prepared for storm drainage works along the Anacostia River as far as Massachusetts Avenue in connection with the Anacostia River improvement, as well as permanent outlets for the Northeast Boundary sewer and the B Street SE. sewer. Sections of the Fillmore Street, Fourteenth Street, Twelfth Street, and Kentucky Avenue outlet mains and of the Piney Branch. Barry Place, and Illinois Avenue trunk sewers were planned and built, as well as sections of relief storm sewers, the most important being the Maryland Avenue storm-water diversion, construction on which was nearly

completed at the close of the year.

Plans for the sewage-disposal system included new sections of the Rock Creek main interceptor as far north as Boulder Bridge, including tunnels Nos. 2 and 3, the Anacostia main interceptor to Bennings Road, the upper Potomac interceptor through K Street in Georgetown, along the Chesapeake & Ohio Canal to Foundry Branch, and thence via the Canal Road to Chain Bridge; detail plans for the Poplar Point pumping station and its equipment, including the superstructure, were in progress. Plans were completed for the preliminary treatment of sewage at the United States Asylum for the Insane, as well as plans for the diversion of all sewage from this institution into the interceptors of the disposal system.

The engineering data for the year included rainfall, run-off, and river flow record, as well as examinations of the river bottom in the Potomac for many miles below the sewage outfall to detect any evidence of sludge deposits. Bacteriological examination of the streams entering the District to ascertain the degree of their pollution by sewage from adjacent Maryland towns was continued during the year, and the results of these examinations are given in

tabular form hereafter.

A sanitary survey of the Potomac River by the United States Public Health Service was in progress during the year. As this survey included oxygen determinations, the similar work of this department was suspended to avoid expenditure for duplicate work, so that no oxygen tests are available for this report. All assistance possible in the way of transportation was given to the Public Health Service in connection with this survey.



## BAINFALL AND BUN-OFF.

Data for run-off studies included rainfall record from 3 automatic recording and 21 ordinary gauges, distributed over 50 square miles of area, as well as discharge and flow-line determinations for excessive storms in a number of the main drainage lines.

The storm of greatest intensity for the year occurred on July 30, 1913, beginning about 3.10 p. m. and lasting about 30 minutes. During this interval, in the northwest section, more than 1½ inches of rain fell in 20 minutes. The storm was accompanied by winds of extraordinary velocity, doing considerable damage to buildings and breaking off the branches of many trees. The number of cases of street flooding due to this rainfall was greatly increased by the washing of branches of trees across the front of storm-water inlets, so as to obstruct or partially obstruct same.

The following tabulations give the details of the precipitation for this storm. as well as the record for the four other excessive storms of the fiscal year:

Tabulation of the total observed rainfall for the five excessive storms of the fiscal year 1914 as recorded at 24 stations.

		Date.						
Station.	Location.		1913		19	)14		
		July 30.	Aug. 1.	Aug. 29.	June 25.	June 28.		
No. 1	Weather Bureau	2, 02	1.77	1.48	1.28	2.9		
Vo. 2 Vo. 3	Scale house, First and O Streets SE	. 65	1.65	1.42	1.15	1.7		
No. 4	and A Streets NE	1.00	2.00	1.90	.84	1.9		
	teen-and-a-half Street NW	1.59	1.90	1.59	1.50	2.8		
No. 5	Great Falls, Md.	.02	.88	1.23	. 65	1.6		
To. 6	Receiving reservoir, Conduit Road	. 53	1.15	1.73	1. 17	2.2		
Vo. 7	Pumping station, Rock Creek and Massa-		220					
	chusetts Avenue	1.62	1. 10	1.50	1.32	2.6		
io. 8	Filtration plant	2. 20	. 92	1.48	. 72	2.3		
io. 9	Tenleytown, Warren Street and Wiscon-							
	sin Avenue	1.20	. 75	1.00	1.05	3.1		
io. 10	Georgetown, Dent Place and Thirty-fifth					<b></b>		
	Street	1.45	1.05	1.40	1.62	2.8		
io. 11	Zoo bird house	1.60	. 70	1.30	1.40	2.9		
o. 12		2.00	1.15	1.55	1.12	2.5		
lo. 13		1.90	1.80	1.68	1.35	2.7		
0. 14	Brightwood, Georgia Avenue and Nich-	1.80	1.00	1.00	1. 30	4. 1		
.0. 14	olson Street	2.10	. 62	1.10	1.07	2.3		
io. 15	Park Road and Holmead Place	1.95	.72	1.68	.52	2.7		
o. 16		1.85	1.98	1.35	1.52	2.0		
io. 17	New York Avenue and New Jersey	1.80	1.98	1.35	1. 52	2.00		
10. 17	A TABLE	3.00	1.00	1.70				
lo. 18	Avenue Delaware Avenue and C Street NE		1.60					
io. 18		1.20	2.05	1.70	. 48	2.6		
10. 19	SESE							
T- 00	Brookland, Twelfth and Monroe Streets	1.82	2. 10	• • • • • • • • • •	• • • • • • • • • •	- <b></b>		
10. 20	Brookland, I wellth and Monroe Streets							
7 - M	NE.	1.20	1.10	1.55	. 58	2.89		
0. 21	Thirteenth Street and Maryland Avenue							
1- 00 1	BE	1.40	1.82	1.75	1. 25	1.70		
o. 22	Bennings, Minnesota Avenue and Gault	1						
	Place NE	1.35	1.50	1.75	. 72	• • • • • • • • • • •		
	Anacostia Fourteenth and V Streets SE	1.92	1.88	. 95	1.05	2. 38		
0. 24	Congress Heights, Fourth Street and					_		
	Nichols Avenue SE	1.45	1.75	. 59	. 40	2.60		

## Rainfall of July 30, 1913 (began 3.10 p. m.).

[Depth of precipitation (in inches) at time indicated.]

. Gauge.	3. 10	3. 15	3. 20	3. 25	3.30	3. 35
No. 1	0	0. 52 . 00 . 05	1. 21 . 03 . 12	1. 51 .09 . 22	1.56 .15 .32	0.22

# Rainfall of July 30, 1913 (began 3.10 p. m.)—Continued. MAXIMUM BATE.

## [Rate of precipitation (in inches per hour) during periods of time indicated.]

Gauge.	5 minutes.	10 minutes.	15 minutes.	20 minutes.
No. 1	.72	7. 26	6.04	4. 68
No. 2		. 78	.72	. 72
No. 3		1. 20	1.24	1. 20

#### MAXIMUM PRECIPITATION.

## [Depth of precipitation (in inches) during periods of time indicated.]

Gauge.	5 minutes.	10 minutes.	15 minutes.	20 minutes.
No. 1.	.03	1.21	1. 51	1.56
No. 2.		.09	. 15	.22
No. 3.		.17	. 27	.38

## The precipitation, by months, for the fiscal year was recorded as follows:

_	1913.	Inches.	1914.	Inches.
August September October November		5. 24 5. 42 2. 41 3. 37 2. 20	January February March April May June	2, 95 2, 27 3, 20 1, 72
			Total	39.87

## RIVER FLOW AND SEWAGE DILUTION.

The outfall of the sewage-disposal system, opposite Grimes on the Potomac River, where substantially the entire sewage of the District of Columbia is discharged in mid-channel at the river bottom, was under observation during the year. The conditions in the neighborhood of the outfall continued excellent, while examinations of the river bottom show no evidence of sludge deposits for a distance of 60 miles below the sewage outlets, while the shores and beaches were free from any objectionable condition as to odor, deposits, or otherwise, and the surface of the river substantially free from oily sleek or other objectionable floating matter.

The following is a tabulation of the flow of the Potomac River for each month of the year, together with the average discharge through the outfall. The latter includes considerable storm water, ground water, and stream flow from suburtan areas, as well as all leaks and wastes of the water supply system. The actual ratio to river flow is given in this tabulation as well as the ratio of effective dilution obtained.

River flow and sewage dilution.

20	River dis	charge (secon	d-feet).	Average pumpage	Ratio to	Effective
Month.	Maximum.	Minimum.	Mean.	(second- feet).	flow.	dilution.
1913.						
aly	11, 625 6, 960	3,925	6, 230	97 101	1:64 1:40	128:1 80:1
September	4,862	2,100 988	4, 041 2, 265	95	1:24	48:1
October	54,000	2, 321	8,771	94	1:93	186:1
November	66,500	4, 162	16,099	88	1:183	366:1
December	30, 250	5, 288	10, 123	84	1:121	242:1
1914.						
Jamery	56, 625	10,500	26, 179	90	1:270	558:1
Pebruary	49, 125	7,825	20, 100	94	1:214	428:1
March	84, 250 65, 500	7, 138 11, 738	24, 243 26, 362	89 93	1:272 1:284	544:1 568:1
April	29, 250	4,050	12, 226	94	1:130	260:
June	6. 150	2,775	4, 107	100	1:41	82:1

During the past 12 months the river flow has fallen below 1.000 second-feet on 1 day, below 1,600 second-feet on 3 days, below 1,800 second-feet on 10 days. below 2.000 second-feet on 16 days, and below 2,200 second-feet on 20 days. The minimum flow was 988 second-feet, on September 15, 1913, and the maximum flow was 84,250 second-feet. The mean flow for the year was 13,312 second-feet. The minimum flow for this year was 988 second-feet, as compared with 2,175 second-feet for the preceding year, but it is to be noted that this unusual minimum flow was for 1 day, and that on the immediately preceding and succeeding days the flow was 1,735 and 1,850 second-feet respectively.

#### SANITARY SURVEY OF THE POTOMAC RIVER.

In connection with the general statement of the conditions of the Potomac River, so far as the discharge of sewage therein is concerned, it is proper to record that the sanitary survey of the river by the United States Public Health Service was in progress during this fiscal year. It is understood this survey has been substantially completed and that the report is in preparation. Great importance is attached to the results of this survey, particularly in determining the question of the self-purification of river waters, as well as an authoritative statement of local conditions in the Potomac such as will indicate future procedure by the District of Columbia in dealing with the problem of sewage purification.

#### METROPOLITAN SEWERAGE DISTRICT.

In connection with the general project requiring the removal of sewage now discharging from adjacent Maryland towns into the small streams entering the District of Columbia through the park system, work was continued during the year on a study of the condition of these streams with a view to recording their present pollution, as furnishing important data for future action by the District of Columbia to correct this serious condition. The pollution of these streams is now very apparent and is steadily increasing. The subject has been made the matter of a special and thorough investigation by the State Department of Health of Maryland and its bureau of sanitary engineering, and a comprehensive report on this subject was submitted by the latter on February 3, 1914, to the sewage commission of Montgomery and Prince George Counties, a commission appointed by the governor to consider plans for remedying these existing conditions. It is understood that the commission submitted to the Maryland State Legislature which met in January, 1914, a bill providing for the creation of a sanitary district embracing the State area adjacent to and draining into the District of Columbia, but that no action was taken by the legislature toward enacting this bill. Until sufficiently comprehensive action is taken by the State of Maryland on this subject no definite recommendation can be made for action by the District of Columbia to secure the abatement of these conditions, which within a comparatively short period, it is believed, will constitute a nuisance.

Attention is invited again to the portion of my annual report for the fiscal year 1909, relating to this subject, from which the following is abstracted:

"The only practical solution of this problem is believed to be in the formation of a metropolitan district under the control of a State and National board, with power to construct the necessary valley interceptors for the removal of the sewage, and that these interceptors be arranged so as to discharge at the State line into the interceptors of the sewage-disposal system of the District of Columbia, the District to be reimbursed for the cost of pumping and handling the sewage from the Maryland towns and villages by a State-collected tax levied upon the communities benefited, which would also defray the cost of construction and maintenance of the State system."

The interests of the District are so immediate and the conservation of the purity of these streams so important as a measure of protection to these national parks that, in the interest of public health and sanitation, it is important that some adequate remedy be applied, such as is suggested in the foregoing paragraph, without great delay.

Also, in this connection, attention is invited to the fact that during this year the following towns bordering on and draining into the streams flowing through the District of Columbia have, it is understood, secured authority for the issue of bonds for the construction of sewerage systems; Rockville, in Montgomery County; Kensington, in Montgomery County; and Mount Rainier, in Prince George County. That these systems will be important factors in the near future in stream pollution may be indicated by the fact that the authorized issue of bonds for the sewers, it is understood, is more than \$150,000.

## Report of Maryland State Department of Health.

The following is abstracted from the report of the bureau of sanitary engineering, State Department of Health, Maryland, entitled "The collection and disposal of the sewage of those sections of Maryland adjacent to the District

of Columbia," dated February 8, 1914, viz:

"For several years it has been evident that a number of the streams entering and passing along the borders of the District of Columbia have been polluted by sewage from communities in Maryland lying near the District boundary line. Attention to this condition has been drawn by its mention in the yearly reports of the egineer department of the District of Columbia, and a movement to remedy the situation, for the protection of the welfare of those living within the city of Washington, has been urged.

"Owing to the rapid growth of population in the Maryland suburban territory, this pollution is fast increasing, and there is every prospect of a still greater increase in the near future on account of the fact that number of the communities are taking steps at the present time toward installing sewerage systems. Even now conditions in some of the streams are almost intolerable.

"Condition of streams.—Little Falls Brook is the most badly polluted of any of the streams under consideration. Near its headwaters in Chevy Chase it receives gross pollution from the improperly operated irrigation field belonging to that community. Its condition at certain times of the year—particularly in summer, when the stream flow is small—is almost intolerable. Both bed and banks are coated with filthy slime and rank organic growth caused by the entering sewage. At times it is no better than an open sewer, and where it passes under the Rockville Road is particularly objectionable to the public. Just below this point an attempt has been made to remove the stream from view by inclosing it in a large terra-cotta pipe for a short distance; but this has failed to serve the purpose for which it was intended, and a filthy pool has been formed at its upper end.

"Kensington Branch drains the greater part of the town of Kensington and receives the effluent and probable overflow from the present Kensington sewage disposal field. It is a highly polluted stream, passing along the line of the Kensington Electric Railway, and in summer is most offensive. The large amount of water flowing in Rock Creek, however, affords sufficient dilution to the sewage entering at this point, and therefore the creek is not objectionable

as to appearance or odor.

"The worst condition in the entire drainage area of the Anacostia River exists on Sligo and Takoma Park Branches below the so-called sewage-disposal plants of Takoma Park. From Silver Spring some pollution reaches Sligo Branch through the small stream draining the community, but it has no noticeable effect. Not until the disposal plant is reached does the condition of Sligo Branch become offensive. The sand filters at this point have been examined on several occasions and show the effect of gross neglect. At the time of one examination sewage was being permitted to discharge upon one of the beds, but instead of passing through the sand it was flowing through a hole in the center of the bed directly into an underdrain and thence to the stream. At another time even this pretense at treatment was not being made, for the sewage was entirely shut off from the beds and was discharging directly into the stream by means of a ditch. The conditions existing at this latter time were almost indescribable. The amount of upland flow was small and the contribution of sewage large, so very little dilution was afforded, and the odor from the putre-tying organic matter was sickening."

## Stream pollution.

As an indication of the present pollution of these streams the following is a tabulation of the bacteriological determinations from samples collected by this department at or near the District line, and are from results furnished by the

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hygienic laboratory of the United States Public Health Service, to which acknowledgments are due for this work:

Bacteriological survey of streams, showing total bacteria and B-coli per c. c. in analysis of samples taken from streams as located.

Month.	Rock Creek at north end of Rock Creek Park.		Chevy Chase branch at Brookville Road.		Little Falls branch at Wisconsin Avenue.		Anacostia River at District Line.	
	Total.	B-coli.	Total.	B-coli.	Total.	B-coti.	Total.	B-coll,
1913.  July 1.  July 8.  July 28.  July 29.  Aug. 5.  Aug. 20.  Aug. 27.  Sept. 4.  Sept. 17.  Sept. 25.  Sept. 30.  Oct. 17.  Oct. 16.  Oct. 22.  Oct. 29.  Nov. 12.  Nov. 12.  Nov. 19.  Nov. 26.  Dec. 3.  Dec. 3.	9,000 88,500 6,700 5,000 38,400 4,300 1,700 850 1,200 4,400 14,000 700	1 100 10 10 10 10 10 100 100 100 100 10	5,900 60,000 11,900 8,000 13,100 87,000 155,000 32,500 32,500 31,000 30,500 43,500 6,500 3,200 6,500 3,200 6,500 3,200	1,000 100 1,000 1,000 100 1,000	156,000 1,100,000 1,70,000 1,75,000 1,910,000 1,965,000 750,000 780,000 2,650,000 165,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000 125,000	10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 1,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000	149,000 8,900 27,000 8,300 9,500 8,300 2,900 11,300 1,900 8,700 32,500 1,850 9,300 1,850 9,300 1,850 9,300 1,400 1,400 1,400	1,000 18 1,000 1,000 1,000 10,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,
1914.	•••		0,000	2,000	100,000	20,000	2,000	
Jan. 7. Jan. 15. Jan. 28. Feb. 4. Feb. 4. Feb. 11. Feb. 26. Mar. 28. Apr. 3. Apr. 8. Apr. 22. May 1 May 8. May 1 May 18. May 19. June 20. June 10.	1,700 900 2,200 1,100 19,000 350 950 350 400 900 3,250 1,000 1,000	10 10 10 10 10 100 100 10 10 1,000 1,000	6,900 23,000 7,900 4,700 8,800 2,400 33,000 9,000 9,000 2,700 9,100	1,000 1,000 100 100 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000	60,000 130,000 59,000 102,000 216,000 358,000 44,000 48,000 67,500 80,000 30,500 410,000	1,000 10,000 10,000 1,000 1,000 1,000 10,000 10,000 10,000 10,000 1,000 1,000 1,000 1,000	2,900 1,100 3,500 2,900 1,600 1,500 1,100 4,100 8,200 5,350 64,000	100 100 100 1,000 100 100 100 1,000

## DIVISION B.—Operation and maintenance, sewerage system.

The operating work for the fiscal year included the cleaning of 45,502 stormwater catchment basins, an increase of 5,259 over the work of the preceding year. The number of loads of silt removed from these basins was 7,846, an increase of 1,598 loads over the preceding year. The cost of cleaning these basins, including the cost of team haul, was \$14,322.15, against \$14,736.40 for the preceding year. The average cost of this work was 8.79 cents per basin, and the average cost per load of silt removed was \$1.31. During all but two months of the year the material from these catchment basins was removed from the city by scows and deposited, under permit from the United States Engineers' Office, as fill back of the bulkhead lines of the Anacostia River improvement between Poplar Point and Giesboro Point. The cost of loading on scows, water transportation, unloading, and grading for the fiscal year was \$2,930.92, so that the total cost of cleaning the catchment basins was \$17,257.07. This improved method of the disposal of this material at points remote from the city involves this considerable increased cost, but it is believed to be fully justified in the interest of proper sanitation.

Two hundred and twenty-nine thousand four hundred and eighty-five cubic feet of material was removed from catchment basins and sewers and 798,666 pounds

was from sewage screens and incinerated.

The maintenance work of the year included the inspection of the interior of 134.22 miles of main sewers and inspection of 1,200 miles of pipe sewers. General repairs were made throughout the system on both main and pipe sewers and their condition as to maintenance was excellent. The more important repair work for the year included the construction of new concrete floor in the old B Street sewer, between Tenth and Twelfth Streets, and repairs and improvements to the Boundary sewer outlet in connection with the construction of the 55-foot discharge channel for this sewer.

The following tabulation indicates the total length of sewers at the close of the fiscal year and gives the length and the expenditure for 20 years for operation and maintenance, based on the total appropriation for this work. This tabulation indicates the reduction in annual expenditure per mile for mainte-

nance in the past 10 years from \$123.70 per mile to \$76.30 per mile.

Year.	Length of sewers.	Appropriation for maintenance.	Cost of mainte- nance per mile.	Year.	Length of sewers.	Appropriation for maintenance.	Cost of mainte- nance per mile.
1896. 1896. 1897. 1898. 1899. 1890. 1901. 1902. 1904.	Miles. 338, 30 351, 35 369, 04 382, 78 394, 92 408, 09 421, 38 436, 89 448, 09 456, 87	\$45,000 45,000 50,000 50,000 50,000 50,000 50,000 58,000 58,000	\$123.02 128.00 135.49 130.62 126.61 122.52 118.67 122.76 129.44 126.95	1906	Miles. 468, 86 484, 40 1 501, 44 1 521, 18 1 542, 03 1 567, 98 1 589, 74 1 618, 53 1 644, 28 1 661, 49	\$58,000 42,000 38,000 44,500 45,000 48,500 50,000 50,000 50,000 50,500	123. 70 86. 70 75. 78 85. 38 83. 02 85. 39 84. 70 80. 77. 61 76. 30

<sup>&</sup>lt;sup>1</sup> Exclusive of sewage disposal maintenance.

There are now 661.49 miles of main and pipe sewers and 5,305 catchment basins maintained. This work includes the repairing, cleaning, flushing, and inspection of sewers and appurtenances. An accurate detail daily record of all work performed, with complete cost keeping, is maintained on the card system.

The following is a summary of the work of this division for the fiscal year, with a statement of the expenditure for each detail of the work:

## Cleaning and repairing, fiscal year 1914.

Cleaning and repairing, figure 1914.	
Cleaning:	
Main sewers cleanedfeet_	
Pipe sewers cleaneddo	145, 767
Pipe sewers flusheddodo	6, 339, 122
Manholes flushednumber	17, 208
Sumps. regulators, and gates cleaned and inspecteddo	4, 222
Storm-water receiving basins flusheddodo	18, 586
Gravel basins cleaneddo	2
Basins cleaneddo	
Basin outlets cleaneddo	65
Sludge removed—	
Pipe sewerscubic feet	
Storm-water receiving basinsdo	
Gravel basinsdo	1, 890
Sediment chamber, sewerage pumping stationdo	62. 856
Screens, sewerage pumping stationpounds_	798, 666
Inspection and repairs:	•
Main sewers—	
Main sewers inspectedmiles_	
House connections inspected and repairednumber	
Special large connectionsdo	24

Inspection and repairs—Continued. Pipe sewers—	
Pipe sewers inspectedmile	s 1, 200
Pipe sewers relaid, including basin connectionfee	t 369
Pipe sewers abandoneddo_	
Settlements refillednumbe	
Manholes reconstructeddo_	10
Manholes adjusted and repaireddo_	100
Manholes abandoneddo_	
Manhole frames replaceddo_	
Manhole covers replaceddo_	111
Basins—	_
Reconstructednumbe	
Repaireddo_	99
Abandoneddo_	
Alley grates replaceddo_	9
Alley frames replaceddo_	8
Cost: Cleaning and inspection— Inspecting main sewers——————————————————————————————————	
Inspecting and flushing pipe sewers	
Cleaning main sewers	364. 57
Cleaning pipe sewers	<b></b> 3, 718. 80
Cleaning catch basins—	
City basins, iron wagons \$3,384	
City basins, tank wagons 8, 760	. 74
County basins, dump wagons	
Removal by scows—	
Loader \$987.53	
Transportation 328. 50	
Unloader	
2, 930	. 00
Cleaning gravel basins	17,257.07
Cleaning gravel basins	204. 67
Cleaning and inspecting sumps, gates, and regulators	990. 01
Flushing catch basins	1,005.80
Repairing—	
Main sewers	3, <b>374.</b> 69
Pipe sewers and basin connections	927. 78
Abandoning pipe sewers	110. 45
Filling settlements over sewers	32. 83
Reconstructing basins	
Repairing and adjusting basins	687. 70
Abandoning basins	
Replacing basin grates and frames	
Reconstructing marholes	
Adjusting and repairing manholes	509.56
Abandoning manholes	
Replacing manhole frames and covers	
Miscellaneous work	
MINCHIGHTUMS WATER-BELLEVILLE	000.00

DIVISION C.—Operation and maintenance, sewerage-pumping stations, yards and shops.

Under this division is included the operation and maintenance of the main sewerage pumping station; also of substations, gates, automatic regulators, and all mechanical equipment of the sewer division, as well as the management of shops, stores, yards, floating equipment, and the installation of mechanical apparatus, as well as other special construction.

Rewerage-pumping service.—22,652 million gallons of sewage and 417 million gallons of storm water were pumped during the year. The pumping plant was continuously operated without interruption of service and receives the sewage from practically the entire District, delivering same to the outfall on the Potomac River. The fixed hydraulic levels were maintained on all classes of the pumping service.

The following is a tabulation of the quantities for each month:

Total pumpage, in gallons, for each month of fiscal year, 1914.

Month.	Sewage.	Storm water.	Month.	Sewage.	Storm water.
1913. July	1, 956, 012, 663 2, 041, 130, 769 1, 935, 233, 814 2, 052, 974, 206 1, 802, 183, 160 1, 819, 300, 730	38, 291, 616 119, 762, 640 8, 307, 288 3, 985, 344 9, 391, 140 33, 565, 752	1914. January. February. March. April. May. June.	1,918,774,990 1,764,398,400 1,839,491,332 1,908,494,702 1,546,889,824 2,068,283,150	61, 086, 168 26, 658, 720 14, 137, 200 51, 960, 269 6, 732, 000 43, 353, 948

Nine million three hundred and eighty-eight thousand pounds of coal were consumed, and there were used 1.582 gallons of cylinder oil, 1.440 gallons of engine oil, 116 gallons of miscellaneous oils, and 529 pounds of engine grease. Two thousand gallons of illuminating oil and 10,237 gallons of gasoline were consumed, the latter including all usage of the department during the year. One thousand two hundred and ninety-four pounds of cotton waste was used and 1.374 pounds of waste were washed and reused.

The following are the principal items of betterment for the year:

Pumping plant.—Among the minor improvements and repairs in connection with the pumping machinery were the installation of new thrust-bearing oil rings in main pumping engines Nos. 2 and 3, Class I, and the installation of new rocker arm on condenser pump of engine No. 4, Class III; also rebored high-pressure cylinder and made and installed new piston ring in engine No. 1, of Class II. Rebuilt fire-brick arches in boiler furnaces Nos. 3, 4, and 5 and front walls in ash pit under No. 5 boiler; also renewed two tubes in boiler No. 3 and one in boiler No. 2 and made and installed new valve stem in stoker engine No. 1 and repaired and painted coal tower.

Station repairs and betterments.—The installation of a 3-inch electric drainage pump and a 5-inch electric sewage pump; also the completion of the emergency electric breakdown service between the main pumping station and United States navy yard, including tablet board equipped with circuit breakers, watt meter, and switch. This connection is to provide electric current for power, lighting, and pumping in case of a breakdown of the station plant, and the equipment is so arranged as to afford a reciprocal service to the United States navy yard. Installed water meters on water supply mains to pumping station, and made and installed five improved type switches on electric hydraulic level indicators.

Substation work.—Completed excavation, foundations, and foundation walls for Poplar Point substation under contract No. 5332, at a cost of \$6 299.76. The substructure walls, gate, and screen wells, skimming tank, and sediment chamber have also been constructed and gates and other equipment partially installed. The electric hydraulic level indicators for recording substation pumping levels have been completed; these will be located on south wall of engine room of main station. Replaced submarine telephone cable from sewage pumping station across the Anacostia River to inlet chamber cut by the United States Engineers' dredge Dalecarlia.

Stores.—All tools and miscellaneous supplies purchased for the sewer department were received, inspected, and issued at storeroom and yards, accurate records being kept on the card system by the storekeeper and quarterly reports made covering all unexpendable property. An inventory of all property was taken at the close of the fiscal year in order to vertify accounts and close records. All unserviceable property was returned to the purchasing officer for condemnation and sale.

Yard.—The water front of the sewer department yard at the foot of First Street SE. was dredged during the year to a depth of 9 feet below datum. All silt from storm-water catchment basins is placed aboard scows at this yard. An electric time stamp was installed to record team time on basin cleaning work. The following special concrete work was made at the yard during the year: 100 side basin tops, 79 corner basin tops, 390 cheek blocks, 168 drip stones, 774 linear feet of concrete semicircular pipe, 24-inch diameter; a 6-inch water supply main was installed in this yard and gutters and roadways paved.

Floating equipment.—During the year the floating equipment was employed in conveying materials removed from sediment chamber, from storm-water catchment basins throughout the city, and ashes from the pumping station, to the points of disposal; in conveying construction materials to points along the water front where sewer work was in progress, in transportation of chemists of the sanitary survey of the Potomac River, on dredging in front of sewer outlets, and in front of sewerage pumping station and sewer department yard, in the transportation of inspectors and assistant engineers. The towboat Virginia and the launch were overhauled and painted, various repairs were made to scows, and two work bonts were constructed. Pile-driver planes were built and equipped with hammer for repair pile work. Sheet pile cofferdam at boundary sewer outlet was constructed and clamshell dredge with equipment completed Special dredging jobs were completed in slip for loading manure for Occount at the foot of First Street SE, removing 400 cubic yards, and in the slip at the Ninth Street Wharf for material barges from Occoquan where 250 cubic yards were dredged, including the removal of the wreck of a large schooner, which required blasting with dynamite.

Shops.—In addition to work in connection with construction and repairs enumerated in preceding paragraphs of this division, work of the shops included all repairs to pumping and other machinery, cleaning wagons, motor trucks, and construction equipment, minor repairs for maintenance and betterment of building, and maintenance of electric lighting and power circuits. Small tools were made as follows: 88 chisels, 24 drills, 24 basin scoops, 12 hose bridges, 12 hook poles, 25 digging and pipe forms, and 130 miscellaneous tools; and small tools were repaired as follows: 4,409 picks, 95 mattocks, 721 drills, 456 chisels, 7 basin scoops, 30 axes, 28 hatchets, 60 handsaws, 31 crosscut saws, 33 wheelbarrows, 40 dirt rammers, and 139 miscellaneous tools. Five thousand seven hundred new manhole irons were made for construction work. Forms were made for 29 construction and repair jobs. Sixteen new-type basin cleaning wagons and 48 tanks for same were fitted up and painted and 8 new removable metal covers for tanks were built. One narrow-gauge gasoline motor car. 2 side-dumping cars. and 1 flat car were fitted up, and one 3-ton portable gasoline derrick completed.

Also 1 deck scow was completed.

Miscellaneous construction.—Automatic sewage regulators were installed at Massachusetts Avenue and Connecticut Avenue, along the line of the Rock Creek main intercepting sewer; a 3-ton electric derrick installed at sewer department yard and hothouse at pumping station yard; also construction track laid from inlet chamber wharf to Poplar Point, and wire fence around yard erected. loading hopper constructed at wharf, this equipment used for the handling of

construction materials in the area radiating from Poplar Point.

Miscellaneous work.—The automatic recording rain gauge was removed from the sewerage pumping station and recrected at the scale house, sewer department yard, in a more satisfactory location for correct record of rainfall. Ninety separate jobs were done in connection with sewer construction and maintenance work, costs of which are included in costs shown in the tables. Notable among this work was the reconstruction of the boundary sewer outlet, the installation of sewage regulator at Seventh and L Streets SW., 2.500-foot outlet line from the White House fountain to the bathing beach, including gate wells and controlling gates, and the construction of an automatic sewage collecting chamber on the Kenilworth trunk sewer outlet.

## DIVISION D.—Construction, sewerage system.

The following is a statement of the length of pipe sewers constructed during the year and the cost of same aggregated for the several construction districts:

Section.	Length.	Cost.
1. County west of Rock Creek. 2. County east of Rock Creek 3. County west of Anacostia River 4. County east of Anacostia River. 5. Washington City.	Feet. 17, 217, 02 27, 352, 38 6, 477, 43 17, 085, 34 14, 995, 54	\$34, 997. 16 123, 187. 20 60, 250. 66 88, 535. 36 72, 782. 87

The following is a detailed statement of sewers constructed in the various districts:

Western district, county west of Rock Creek .- In this area 13.251.52 linear feet of service sewers, 3,152 linear feet of service mains, and 813.50 linear feet trunk sewers were constructed, a total of 17.217.02 linear feet as follows: Foxhall Heights, 654.15 linear feet of service sewers; Potomac Heights, 4,250.43 linear feet of service sewers; and 54.50 linear feet of trunk sewers, a total of 4,304.93 linear feet; University Heights, 82 linear feet of service sewers; Tenallytown, 2.504.21 linear feet of service sewers and 31,121.60 linear feet of service mains, a total of 5,175.81 linear feet; Chevy Chase, 4,254.57 linear feet of service sewers; Cleveland Park, 560.50 linear feet of service sewers and 282 linear feet of trunk sewers, a total of 842.50 linear feet; Woodley Park, 934.40 linear feet of service sewers and 268.80 linear feet of trunk sewers, a total of 1,202.40 linear feet; Massachusetts Avenue Heights, 30.40 linear feet of service mains; Georgetown, 461.25 linear feet of service sewers and 209 linear feet of trunk sewers, a total of 670.26 linear feet. Thirty-six storm-water receiving basins were constructed in this section during the year.

Also the following miscellaneous work was done in this district: Concrete flow and outlet section for Weaver Place trunk sewer. Regulator chambers, Connecticut Avenue trunk sewer at connection with the Rock Creek main interceptor, and Massachusetts Avenue trunk sewer at connection with Rock Creek main interceptor. Screen wall and gate, Normanstone Drive outlet of trunk sewer west side Rock Creek. Three hundred and twenty-five linear feet of concrete invert on Rock Creek main interceptor under Massachusetts Avenue, where settlement of section built prior to the heavy fill at this point had

occurred.

Central district, county east of Rock Creek,-The following is a summary of work in the several sections: Takoma, 959.70 linear feet of service mains and 3,031.75 linear feet of service sewer, a total of 3.991.45 linear feet; Brightwood, 3.031.75 linear feet of service sewer, a total of 3.991.45 linear feet; Brightwood, 1.641.90 linear feet of trunk sewer, 1,630.20 linear feet of service mains, and 2,056.27 linear feet of service sewers, a total of 5.328.37 linear feet; Petworth, 1.839.97 linear feet of trunk sewer, 901 linear feet of service mains, and 6,787.94 linear feet of service sewers, a total of 9.528.91 linear feet; Mount Pleasant, 631.65 linear feet of trunk sewer and 1.580.11 linear feet of service sewers, a total of 2.211.76 linear feet; Washington Heights, 580.10 linear feet of trunk sewer, 152.10 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 linear feet of service mains, and 3,214.16 ice sewers, a total of 3,946.36 linear feet; Eckington, 42.10 linear feet of service mains and 1,015.43 linear feet of service sewers, a total of 1,057.53 linear feet. Seventy-three storm-water receiving basins were constructed in this section during the year.

Eastern district, county west of Anacostia River.—In the area between North Capitol Street and Anacostia River sewers were constructed in various sections as follows: Brookland, 2 246.02 line r feet of service sewers; Langdon, 423.5 linear feet of service mains and 2.838.57 linear feet of service sewers, a total of 3.267.07 linear feet; Eckington, 151.51 linear feet of service sewers; Trinidad, 811 linear feet of service sewers. Four storm-water receiving basins were con-

structed in this section during the year.

Eastern district, county east of Anacostia River.—In this section east of the Anacostia River sewers were constructed as follows: Anacostia, 4,160.95 linear feet of trunk sewers and 3.389.25 linear feet of service sewers, a total of 7.550.20 linear feet; Congress Heights, 400.84 linear feet of service sewers; Bennings, 300 linear feet of service sewers; Kenllworth, 4,785.80 linear feet of trunk sewers and 4.048.50 linear feet of service sewers, a total of 8.834.30 linear feet.

The following special work was done during the year: The tide-gate chamber and stone facing was completed at the river ends of the Stickfoot Branch, Chicago Street, and Anacostia main sewer outlets.

The Fillmore trunk sewer, Good Hope Run trunk sewer and Naylor Road trunk sewer outlets were constructed from the Alexandria Branch of the Baltimore & Ohio Railroad on the east side of the Anacostia River to the established

bulkhead line, Anacostia River improvement.

The Twelfth Street trunk sewer, Fourteenth Street trunk sewer, and Commodore Barney Circle trunk sewer on the city side of the Anacostia River were also extended to the established bulkhead line, Anacostia River improvement. This work was necessary in advance of the filling of the Anacostia flats by the United States Engineers' Office and completes all trunk sewer outlets between Poplar Point and the Pennsylvania Avenue Bridge.

A section of the Northeast Boundary sewer outlet channel, 232.15 linear fast and 55 feet wide, was completed during the year.

The Kenilworth outlet sewer and sewage-collecting chamber were completed

and service sewers in Kenilworth built during the year.

Washington City district.—In the northwest section 31 linear feet of trunk sewers, 4.169.65 linear feet of service mains, and 802.85 linear feet of service sewers were constructed. In the southeast section 145.54 linear feet of service sewers, 1.081.50 linear feet of service mains, and 173.10 linear feet of service sewers were constructed. In the northeast section 3,924.05 linear feet of trunk sewers, 1,286.55 linear feet of service mains, and 1,012.50 linear feet of service sewers were constructed. In the southwest section 1,880.30 linear feet of service mains and 488.50 linear feet of service sewers were constructed. During the year 61 storm-water basins were constructed, 57 were reconstructed, and 4 were abandoned.

The following tabulation shows the construction of the sewerage system, the average cost per mile, the funds appropriated for sewer construction, and the

approximate population for each year for 20 years.

Year.	Popula-	Appropria- tions for con- struction.	Miles con- structed.	A verage cost per mile.
1895	259, 000 264, 000 274, 000 279, 000 284, 000 284, 000 300, 000 305, 000 315, 000 321, 000 326, 000	\$215, 619. 00 226, 340. 00 228, 947. 96 175, 000. 00 158, 629. 30 175, 000. 00 250, 000. 00 172, 000. 00 172, 000. 00 170, 000. 00 170, 000. 00 170, 000. 00 233, 000. 00 281, 800. 00 281, 800. 00	13. 23 13. 25 17. 41 10. 18 12. 49 13. 25 12. 87 16. 42 8. 78 11. 99 15. 54 17. 09 19. 10	\$16, 290. 13 17, 079. 25 16, 224. 37 10, 081. 00 15, 587. 02 16, 333. 27 19, 588. 02 10, 938. 21 14, 085. 20 10, 938. 21 14, 085. 20 14, 275. 80
1910	341,000 353,000 353,000	224, 975, 00 219, 040, 00 320, 000, 00 320, 000, 00 345, 000, 00	25, 51 23, 18 24, 66 23, 52 17, 21	8, 815, 17 9, 449, 58 12, 965, 96 13, 605, 44 19, 423, 01

<sup>&</sup>lt;sup>1</sup> Excluding maintenance and sewage disposal system.

## SEWAGE-DISPOSAL SYSTEM.

Rock Creek main intercepting sewer.—The third section of this interceptor was constructed into the National Zoological Park as far as Adams Mill Road, and the fourth section, requiring a tunnel 2,000 feet in length, was completely excavated as far as Klingle Road and a portion of the masonry section constructed. The fifth section, consisting of 1,300 feet of tunnel and 220 feet of open-cut work, was placed under contract and 500 linear feet of the tunnel excavation completed.

Anacostia main intercepting sewer.—Section 8 of the Anacostia main intercepting sewer, extending to Pennsylvania Avenue, was completed during the year, 1.405 linear feet being constructed. A total length of 9,805 linear feet

of this sewer has been completed.

Northeast-boundary sewer-outlet channel.—The most important betterment of existing trunk lines was the construction of the Northeast boundary sewer-outlet channel. As noted in the annual report for 1913, the great storm of July 14, 1912 (when more than 3 inches of rain fell in 25 minutes), completely destroyed the old paved outlet channel, the storm-water conduit, 22 feet in diameter, running 80 per cent of its full capacity. This conduit had been constructed with the spillway more than 9 feet above mean tide in the channel at the outlet, so that the hydraulic drop was nearly 20 feet in excessive storms. To afford an adequate waterway for the great volume of discharge and provide for the shock developed by this sudden fall at the outlet a heavily reinforced concrete channel was designed, 230 feet in length and 55 feet in clear width, with a submerged weir near the outer end to provide a water cushion for absorbing the energy of the fall. Incidentally, this weir furnishes means of measuring the volume of discharge. The floor of the channel is 1

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foot below mean low water, and the constant level behind the submerged weir is 9 inches below mean high water. The side walls are vertical and 9 feet in

height.

Plans and specifications were prepared and proposals asked for this work, but the lowest bid received was considered excessive, and to avoid the danger of delay it was decided to do the work with the department's construction force by day labor. The work was begun on November 3, 1913, and completed January 6, 1914, with no loss or damage during construction, although several considerable rains occurred, and the site was frequently flooded. The following is a statement of the cost of the work, with unit and aggregate costs. compared with the lowest bid received:

The total cost of the work by day labor, including the cost of reinforcing steel and other construction materials, purchased under contract, was \$15,973.72, while cost of this work at the unit price bid would have been \$26,336.31, so

that the net saving was \$10.362.59.

Nineteen hundred and sixty-four cubic yards of concrete masonry were placed. and the cost in place, including all forms, excavation, pumping, and all incidental work, was \$7.47 per cubic yard, while the price bid by the contractor was \$12.75 per cubic yard, a unit saving of \$5.28 per cubic yard.

The cost of construction materials, including reinforcing steel, purchased

under contract, was \$8,490.88.

The work was done under the following construction jobs:

Tab		Cost.		
Job No.	Description.	Materials. Labor.		Total.
830 831	Constructing 193 feet of completed channel	\$5, 922, 59 898, 90	\$4, 467. 96 724. 95	\$10, 390, 55 1, 623, 85
833	Der of the sewage-subvisis system interoper. Constructing 30.5 feet of completed channel, including special walls and connection with the sewer section.	1, 169, 39	2, 289. 93	8, 950. 32

Length of main sewers and pipe sewers and number of storm-water basins constructed during the fiscal year ending June 30, 1914.

Appropriation.	Main sowers.	Pipe sewers.	Storm- water basins.
Main and pipe sewers		Linear feet. 9, 896. 87 12, 589. 82 46, 148. 38	100
Sewage-disposal system. Miscalianeous trust-fund deposits. Miscalianeous appropriations.	85.00	3,917.75 4,615.50	35 41
Total	14, 127. 79	77, 168. 32	176

## RECAPITULATION.

Total length of sewers on June 30, 1914:  Main sewersdododo	133. 57 528. 00
Totaldo	661. 57
Cost of sewerage system, June 30, 1914	\$12, 470, 940, 74 4, 495, 880, 18
Total	16, 966, 770. 87

## DIVISION E.—Maps, records, and drafting.

Detailed drainage studies have been made under 588 engineer department files and 139 plats prepared for extensions of main and pipe sewers, for replacing defective sewers, and for receiving basins. Fifty-six files from the health office have required field work in order to determine availability of various public

sewers for house connections; also 28 files for plats showing assessment on

account of connections from parcel property to the public sewers.

The record maps of sewers have been kept up to date on current construction and in posting new streets and alleys. In addition much missing data of old work has been secured from field surveys and recorded thereon. Fifty-eight maps have been repaired and bound with tape, adding greatly to the durability of these maps.

The service plats used by the public have also been kept posted with current construction, and these maps have been kept up to date by plotting thereon all new subdivisions, as well as the newly established surface grades. Seven worm sheets have been replaced and 13 new sheets covering additional territory have

been added.

The 100-foot scale drainage study maps for the suburban portions of the District have been kept posted to date with current construction, new subdivisions, and newly established grades. This set of working maps has been extended by the addition of 41 new ones covering a large suburban area.

Three hundred and sixty-three slips showing proposed assessment sewers and 127 plats showing the location of all constructed assessment sewers have been

forwarded to the assessor during the year.

The health officer has been notified of the construction of new service sewers

when the same abutted existing houses.

The card index of new subdivisions has been continued, and 541 subdivisions listed. In connection with this index a record is kept on the posting of these subdivisions on record maps, drainage-study maps, service maps, and topographical maps; also upon the subdivision of parcel property a record is kept of any special assessment on account of existing service sewers.

Two old and worn grade sheets have been replaced and 263 new grade sheets

have been made, recording the work of the year.

In order to keep in touch with the development of the water-distribution system and to secure harmonious development of the water-distribution and sewerage systems the posting of a map showing all ordered water mains has been maintained.

All street-paving schedules of the surface division, covering 396 jobs, have been carefully considered and studies prepared, where necessary, for abandoning, reconstructing, or constructing sewers in advance of same.

All surface division maps for establishing new street grades have been carefully studied with reference to their effect on the drainage of the District, and modifications have been recommended where deemed necessary.

Plans, estimates, and specifications have been prepared for sewer construction

under 20 contracts.

Inspection has been continued of premises without sanitary sewers throughout the District, and 3.755 such premises have been listed. This has been done with a view of extending the sewerage system to eliminate insanitary box privies and cesspools where practicable. The following is a statement of existing premises without sewers in the several sections:

County west of Rock Creek	
County east of Rock Creek	412
County west of Anacostia River	406
County east of Anacostia River	2, 200
Washington City	

In addition to the above list, 100 premises in the various districts for which sewers are available have not as yet been connected to same.

Twenty-one plats and deeds for rights of way have been prepared in connection with the extension of the public sewerage system and all of the rights of way have been acquired. These are listed in Table No. 15, appending this report.

DIVISION F.—Records and accounts.

The work of this division consists in the preparation of requisitions and vouchers, records of cost of construction, cost keeping, preparing pay rolls, and material and equipment accounting. It included for the year 934 construction jobs, 7,445 foremen's reports, 12,240 card records, 1.417 supply bills, 559 pay rolls, 1.123 requisitions, 357 transfer and refund vouchers, 761 tool orders, 631 engineer department files, 154 letters, and 14,516 miscellaneous reports.

## Sewerage system.

•		
Cleaning and repairing sewers and basins:		
Appropriation		<b>\$68,</b> 000. <b>00</b>
Expended— Mechanics, laborers, and watchmen	\$25 Q65 24	
Drivers and gate tenders	9, 902, 02	
Inerestore and other nor diem amplayees	1 095 69	
Inspectors and other per diem employees Construction material and tools Repairs to equipment, equipment and supplies_	9 994 90	
Reneirs to equipment equipment and supplies	2, 2071, OF	•
Paid surface division for repaying work	504.00	
Paid engineer department stables for forage,	001.00	
blacksmith work, etc.	8, 723. 98	
Discission Wile, Changes and an arrange and arrange and arrange and arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange arrange ar		67, 975. 18
Unexpended balance	_	24. 82
Outapended balance		21. 02
Maintenance and operation, sewerage pumping service	:	
Appropriation		44, 500. 00
Expended—		
Mechanics, laborers, and watchmen	<b>\$</b> 19, 537, 79	
Inspectors and other per diem employers	862.00	
Coal, oil, waste, and other supplies	<b>22</b> , 176. 60	
Inspectors and other per diem employers Coal, oil, waste, and other supplies Tools and equipment renewals	1, 830. 53	
-	·	44, 406. 92
Unexpended balance		93. 08
	=	
Main and pipe sewers and receiving basins: Appropriation		ar 000 00
Appropriation		65, 000. 00
Expended	07 407 00	
Contract construction	20, 400. 88	
Day-labor construction	21, 009, 20	
Construction material and tools Inspectors and other per diem employees Paid surface division for repaying work	4 147 04	
Inspectors and other per diem employees	9 005 00	
Paid engineer department stable for forage,	0, 800. 20	
Paid engineer department surple for rorage,	197 08	
blacksmith work, etc	206 23	
Daid shief slark's office for salaries, etc.	100 50	
Faid Chief Clerk & Office for Salaries	100.00	64, 883, 57
	-	
Unexpended balance		116. 43
Suburban sewers:	-	
Appropriation		155, 000, 00
Expended—		200, 000000
Contract construction	89. 393. 94	
Day-labor construction	22, 003, 42	
Construction material and tools	13, 167, 33	
Inspectors and other per diem employees	7, 030. 11	
Paid surface division for repaying work	512.38	
Paid engineer department stables for forage,		
blacksmith work, etc	1, 104, 95	
Paid purchasing officer's office for salaries	1, 697. 61	
Paid chief clerk's office for salaries		
Outstanding contracts and material to com-		
plete same	19, 700. 00	154 040 04
-	······································	154. 916. 24
Unexpended balance		83. 76
	=	

Assessment and permit work, sewers:		e10% 000 00 .
Appropriation		\$120,000.W
Expended— Contract construction	<b>e</b> 10 994 10	
Day-labor construction	55, 828. 27	
Construction material and tools	23, 056, 86	
· Inspectors and other per diem employees	7, 493. 23	
Paid surface division for repaying work	3, 187. 71	
Paid engineer department stables for forage,		
blacksmith work, etc	254. 14	
Paid purchasing officer's office for salaries,		
etc	1, 494. 00	*
Paid chief clerk's office for salaries	379. 50	
Outstanding contracts and material to com- plete same	15 000 00	
piete same	10, 000. 00	124. 915. 81
		124. 010. 01
Unexpended balance		84. 19
Comor construction whole cost system.		
Sewer construction, whole-cost system:	110	1 021 00
Unexpended balance of deposits from fiscal year 18 Amount received from various depositors, fiscal year	99 1914	12 330 85
minual received from various depositors, abear je	MI 1011	12,000.00
Total received		14, 262, 75
Expended-		,
Contract construction	\$2, 963, 10	
Day-labor construction	5, 587, 10	
Construction material and tools		
Paid surface division for repaving work	<b>353. 35</b>	
Contingent charges for supervision, engineer-		
ing, wear of tools, etc	556. 19	
Amount carried over to 1915 for completion		
Amount extrict over to 1919 for completion	1 161 18	
of work	1, 101. 10	
Total accounted for		14, 262, 75
	:	
Sewer construction from miscellaneous appropriations		
Repayments		<b>22</b> , 814. 81
Expended— Contract construction	90 407 CK	
Dow-lohow construction	<b>ቅ</b> ህ, <del>1</del> 01. ስብ 7 ዩድብ ዓባ	
Day-labor constructionConstruction material	4 ARS SO	
Inspectors and other per diem employees	289. 23	
Paid surface division for repaving work	115. 29	
Contingent charges for supervision, engineer-		
ing, wear of tools, etc	428. 33	
Total accounted for		<b>22</b> , 814. 81
SUMMARY OF EXPENDITURES.		
Sewerage system.		
Beweruye ayerem.		
Cleaning and repairing		\$67, 975. 18
Maintenance and operation, 1914		44, 406.92
Main and pipe sewers:		,
1913		3. 081. 17
1914		64, 883 57
Suburban sewers:		
1913		15, 822, 55
1914		154, 916, 24
Assessment and permit, 1914		124. 915. 81
Permit workMiscellaneous trust-fund deposits		
Miscellaneous appropriations		
Condemnation		907.85
<b>~</b> ,		301.00

	•		
Outstanding contracts: Suburban sewers, 1914		\$10.700	
Assessment and permit, 1914		15, 000	
Total	-		
The following are payments into the Treasury, on acc		-	
service sewers under the appropriations noted during t	he fiscal yes	r 1914:	
Main and pipe sewersSuburban sewers		\$57. 3, 019.	
Assessment and permit work, sewers		67, 181	
Total	- 	70, 258.	. 00
Servage-disposal system.	•		
Rock Creek main interceptor:			
Unexpended balance from fiscal year 1913		\$37, 998.	. 88
Appropriation for fiscal year 1914		40, 000.	.00
	_	77, 998.	88
Expended—	<b>*</b> AR A78 00		
Contract construction			
Construction material and tools.			
Inspectors and other per diem employees	2, 105. 49		
Paid purchasing officer's office for salaries	60. 74		
Outstanding contracts and material for comple- tion of same	29, 100, 00		
		77, <del>94</del> 9.	29
Unexpended balance		49.	59
Anacostia main interceptor:	-		
Unexpended balance from fiscal year 1913		923.	
Appropriation for fiscal year 1914		<b>50, 00</b> 0.	00
	-	50, 923.	61
Expended—		,	
Contract construction	89, 761. 88		
Day-labor constructionConstruction tools and material	4, 644. 62 <b>5</b> , 080. 84		
Inspectors and other per diem employees	918. 50		
Paid surface division for repaying work	254. 45		
Paid purchasing officer's office for salaries	221. 62		
-		50, 881.	41
Unexpended balance		42.	20
SUMMARY OF EXPENDITURES, SEWAGE-DISPOSA	L SYSTEM.		
Anacostia main interceptor		\$50, 881.	
Rock Creek main interceptor		48, 849.	29
Outstanding contracts—Rock Creek main interceptor, 1	914	29, 100.	00
Total sewage-disposal system	·==	128, 830.	<b>70</b>
Purchase and condemnation of land for rights of way fo			
AppropriationExpended: Cost of rights of way, titles, and-recorded			
expended: Cost of rights of way, titles, and recorded	er iees	907.	35 —
Unexpended balance		92.	65
Total expenditures:		¥47 026	~-
Sewerage system		547, 856.	
Sewage-disposal systemPurchase and condemnation of land for rights of wa		128, 830. 907.	
Total expenditures during the fiscal year 1914	Digitized I	677, 594	<b>49</b> e

## ALLOTMENTS.

Statement of expenditures under allotments made to other departments from sewer appropriations, fiscal year 1914.

		Purchasing officer.		Chief clerk,	Disbura-	
Appropriation.	Engineer stables.	Salaries.	Sand wharf.	engineer depart- ment.	ing office.	Total.
Total allotments	\$10, 210. 13	\$4, 472.31	\$373.84	\$786, 50	\$384.00	\$16, 226.7
Expended:						
Cleaning and repairing	8, 723. 98			<u></u> -	ļ	8,721
Main and pipe	127.06 1,104.95	803.37 1,604.15	93. 46 93. 46	100. 50 306. 50	32.00	1,13L 3,14L
Assessment and permit work	254.14	1,307.08	186. 92	379. 50	352.00	2,479.
Anacostia main interceptor		221. 62 60. 74				221.0
•				•••••		
Total expenditures	10, 210. 13	3,996.96	373. 84	786. 50	284.00	15,75L
departmen  Contingent expenses:  Total allotment  Expenditure—stationery, p					\$1 1	, 171. 9 , 171. 9
underground construction, oharged to each of the severa Expenditures:						i mouni
expenditures: InspectionSupervision	l corpora	tions for	the flac	al year	1914. 	\$967. <b>3</b> 514. 8
Expenditures: Inspection Supervision Record	l corpora	tions for	the flac	cal year	1914.	\$967. 8 514. 8 205. 0
expenditures: InspectionSupervision	l corpora	tions for	the flac	cal year	1914.	\$967. 8 514. 8 205. 0
Expenditures: Inspection	l corpora	tions for	the fisc	al year	1914.	\$967. 3 514. 8 205. 0 , 747. 1
Charged as follows:  Cotomac Electric Power Co  Charged as Potomac Telepho	l corpora	tions for	the fisc	al year	1914.   1	\$967. 8 514. 8 265. 0 , 747. 1
Charged as follows:  Cotomac Electric Power Co  Charged as Potomac Telepho	l corpora	tions for	the fisc	al year	1914.   1	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834 4
charged to each of the several Expenditures: Inspection Supervision Record Total Charged as follows: Potomac Electric Power Co Lhesapeake & Potomac Telepho Washington Gas Light Co Georgetown Gas Light Co	orpora	tions for	the flac	al year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4
Charged to each of the several Expenditures: Inspection	corpora	tions for	the flac	al year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 3. 2
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Charged as follows: Chesapeake & Potomac Telephowashington Gas Light Co	one Co	tions for	the flac	cal year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 3. 2 4. 5
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Potomac Electric Power Co. Chesapeake & Potomac Telephowshington Gas Light Co. Seorgetown Gas Light Co. Washington Railway & Electric Capital Traction Co.	one Co	tions for	the flac	cal year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 3. 2 4. 5 2. 0
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Potomac Electric Power Co. Chesapeake & Potomac Telephowashington Gas Light Co. Georgetown Gas Light Co. Washington Railway & Electric Capital Traction Co.	one Co	tions for	the flac	cal year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 3. 2 4. 5 2. 0
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Potomac Electric Power Co. Chesapeake & Potomac Telephowshington Gas Light Co. Seorgetown Gas Light Co. Washington Railway & Electric Capital Traction Co.	orpora	tions for	the flac	cal year	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 2. 0 10. 0
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Charged as follows: Chesapeake & Potomac Telephowashington Gas Light Co	ne Co	tions for	the flac	cal year	1914.	\$967. \$ 514. 8 205. 00 , 747. 1  876. 0 834. 4 452. 4 64. 5 8. 2 4. 5 2. 0 10. 00 , 747. 1
Capital Traction Co	one Co	diem em	the flac	cal year	1914.	\$967. 3 514. 8 205. 0 ,747. 1 876. 0 834. 4 452. 4 64. 5 2. 0 10. 0
charged to each of the several  Expenditures:     Inspection     Supervision     Record     Total  Charged as follows:  Cotomac Electric Power Co  Chesapeake & Potomac Telepho Washington Gas Light Co  Georgetown Gas Light Co  Western Union Telegraph Co  Washington Railway & Electric Capital Traction Co  discellaneous  Total  Statement of expenditure  Cleaning and repairing  Sewersge pumping service	ne Co	diem em	the flac	, flacal y	1914.	\$967. \$ 514. 8 205. 0 , 747. 1  876. 0 834. 4 452. 4 64. 5 2. 0 10. 0  , 747. 1
charged to each of the several  Expenditures:     Inspection     Supervision     Record     Total  Charged as follows:  Cotomac Electric Power Co  Chesapeake & Potomac Telepho Washington Gas Light Co  Georgetown Gas Light Co  Western Union Telegraph Co  Washington Railway & Electric Capital Traction Co  discellaneous  Total  Statement of expenditure  Cleaning and repairing  Sewersge pumping service	ne Co	diem em	the flac	, flacal y	1914.	\$967. \$ 514. 8 205. 0 , 747. 1  876. 0 834 4 452. 4 64. 5 2. 0 10. 0 , 747. 1  4. 985. 6 862. 0 214. 9
Charged to each of the several Inspection Supervision Record Total Charged as follows: Charged as follows: Chesapeake & Potomac Telepho Washington Gas Light Co-Chesapeake & Potomac Telepho Washington Gas Light Co-Chesapeake & Potomac Telepho Washington Railway & Electric Capital Traction Co-Chesapeake & Potomac Telepho Washington Railway & Electric Capital Traction Co-Chesapeake Total Capital Traction Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Chesapeake Western Union Telegraph Co-Ches	one Co	diem em	the flac	, flacal y	1914.	\$967. \$ 514. 8 205. 0  , 747. 1  876. 0 834 4 452. 4 64. 5 2. 0 10. 0  , 747. 1  , 985. 6 862. 0 214. 9 220. 3
Charged to each of the several inspection	one Co	diem em	the flac	, flacal y	1914.	\$967. 3 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 2. 0 10. 0 , 747. 1 4 , 935. 6 862. 0 , 214. 9 , 220. 3
Charged to each of the several Inspection Supervision Record Total Charged as follows:  Potomac Electric Power Co Chesapeake & Potomac Telepho Washington Gas Light Co Washington Gas Light Co Washington Railway & Electric Capital Traction Co Miscellaneous Total Statement of expenditure Statement of expenditure Cleaning and repairing Sewersge pumping service Main and pipe sewers Suburban sewers	one Co	diem em	the flac	, flacal y	1914.	\$967. 8 514. 8 205. 0 , 747. 1 876. 0 834. 4 452. 4 64. 5 2. 0 10. 0 , 747. 1 4 , 985. 6 862. 0 , 214. 9 , 220. 3

Total\_\_\_\_

24, 750, 12

## OCCOQUAN PRODUCTS,

Brick and broken stone received and issued at the ser	oer d <b>epart</b> m	ent yard.
Receipts—Broken stone: On hand July 1, 1913		
Received during fiscal year 1914	cubic yards	_ 98.53
mecerved during fiscar year 1914-1-1-1	uv	- 0, 000, 20
Total		_ 3, 191. 78
Receipts—Brick:		
On hand July 1, 1913, red brick	number	_ 58. 233
Received during fiscal year 1914—  Red brick	đa	1 050 050
Red paving brick	do	- 1, 202, 300 54 000
Total		_ 1, 364, 583
Issues—Broken stone		4 004 05
Sewer divisionSurface division	ubic yards	_ 1, 201. 35
Surpace (IIV181011	av	- 440.40
Total		1, 647, 28
Isanes—Brick:		
Sewer division		
Surface division		
Washington AsylumFire department		
Public schools	do	_ 683, 100
Industrial Home School, colored	do	2,000
Home for the Aged and Infirm		
		1 001 000
Total		_ 1, 281, 633
Broken stone	uble varda	1, 544, 50
Red bricks	number	73. 750
Red paving brick	do	9, 200
FINANCIAL STATEMENT—OCCOQUAN PROD		
	TOTA	
•	UCTS.	
Amount paid collector of taxes District of Columbia:		
Amount paid collector of taxes District of Columbia:  For brick	<b>\$7, 211. 93</b>	
Amount paid collector of taxes District of Columbia:  For brick  For broken stone	<b>\$7, 211. 93</b>	
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:	\$7, 211. 93 1, 183. 88	
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick	\$7, 211. 93 1, 183. 88 1, 225. 37	
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone	\$7, 211. 93 1, 183. 88 1, 225. 37	\$10, 165. <b>06</b>
Amount paid collector of taxes District of Columbia:  For brick	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88	\$10, <b>165. 06</b>
Amount paid collector of taxes District of Columbia:  For brick	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88	\$10, <b>165. 06</b>
Amount paid collector of taxes District of Columbia:  For brick	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88	\$10, <b>165. 06</b>
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88	\$10, 165. <b>06</b> 1, 636. 57
Amount paid collector of taxes District of Columbia: For brick For broken stone Cost of unloading and handling: Brick Stone Balance due workhouse June 30. 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37	
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone  Balance due workhouse June 30. 1914:  73.750 red brick, stock on hand  9,200 red paving brick, stock on hand  1,544.50 cubic yards broken stone, stock on hand.	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone Stone Balance due workhouse June 30. 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand.  Total  Received for brick issued to— Sewer division	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone  Balance due workhouse June 30, 1914:  78,750 red brick, stock on hand  9,200 red paving brick, stock on hand  1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to—  Sewer division  Public schools  Fire department	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 337. 20 4, 524. 38 809. 90	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone  Balance due workhouse June 30. 1914:  73.750 red brick, stock on hand  9,200 red paving brick, stock on hand  1,544.50 cubic yards broken stone, stock on hand.  Total  Received for brick issued to—  Sewer division  Public schools  Fire department  Washington Asylum	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 387. 20 4, 524. 38 809. 90 244. 40	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone  Balance due workhouse June 30. 1914:  73,750 red brick, stock on hand  9,200 red paving brick, stock on hand  1,544.50 cubic yards broken stone, stock on hand.  Total  Received for brick issued to—  Sewer division  Public schools  Fire department  Washington Asylum  Home for the Aged and Infirm	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 837. 20 4, 524. 38 809. 90 244. 40 6. 50	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30. 1914: 73,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm Industrial Home School, colored	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 387. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30, 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm Industrial Home School, colored Surface division	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 387. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick  For broken stone  Cost of unloading and handling:  Brick  Stone  Balance due workhouse June 30, 1914:  78,750 red brick, stock on hand  9,200 red paving brick, stock on hand  1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to—  Sewer division  Public schools  Fire department  Washington Asylum  Home for the Aged and Infirm  Industrial Home School, colored  Surface division  Received for broken stone issued to—  Sewer division	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 387. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00 582. 40 445. 43	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30, 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm Industrial Home School, colored Surface division Received for broken stone issued to—	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 337. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00 582. 40	1, <b>636</b> . <b>57</b> 11, 801. <b>68</b>
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30. 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm— Industrial Home School, colored Surface division Received for broken stone issued to— Sewer division Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division—	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88 367. 80 110. 40 1, 158. 37 2, 387. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00 582. 40 445. 43 1, 201. 85	1, 636. 57
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30. 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm Industrial Home School, colored Surface division Received for broken stone issued to— Sewer division Surface division Surface division Surface division Surface division Surface division	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88  367. 80 110. 40 1, 158. 37  2, 337. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00 582. 40 445. 43 1, 201. 85	1, 636. 57 11, 801. 68 10, 165. 06
Amount paid collector of taxes District of Columbia:  For brick For broken stone Cost of unloading and handling: Brick Stone  Balance due workhouse June 30. 1914: 78,750 red brick, stock on hand 9,200 red paving brick, stock on hand 1,544.50 cubic yards broken stone, stock on hand  Total  Received for brick issued to— Sewer division Public schools Fire department Washington Asylum Home for the Aged and Infirm— Industrial Home School, colored Surface division Received for broken stone issued to— Sewer division Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Sewer division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division— Surface division—	\$7, 211. 93 1, 183. 88 1, 225. 37 543. 88  367. 80 110. 40 1, 158. 37  2, 387. 20 4, 524. 38 809. 90 244. 40 6. 50 13. 00 582. 40  445. 43 1, 201. 85	1, <b>636</b> . <b>57</b> 11, 801. <b>68</b>

## DIVISION G.—Public-service corporations, underground construction.

The work of this division includes determination of location for underground construction for the various public-service corporations, a supervision of the construction, field locations of same, and the mapping and recording of this work. Special study is given to securing the best arrangement of the various underground structures, particularly with a view to the economical occupation of public space. The work of the year is summarized as follows:

Permits prepared upon application	1, 164 1, 168
Record cards made	
New gas mains laid miles	
Electric duct laiddodo	

In connection with the electric duct, 737 manholes were constructed, 108 drains from manholes to sewer were laid, and 764 houses were connected for electric light and power. One thousand four hundred and sixty-six houses were connected with gas mains. Location and record has been made of a large number of electric street lamps, served in most cases by lead-covered cables buried along the curbstone.

This division has also inspected, located, and recorded the following work:

#### UNITED STATES GOVERNMENT WORK.

Four hundred and eighty-seven linear feet of 4-duct and 1,386 linear feet of 8-duct conduit with 7 manholes and 6 sewer connections; 1,386 linear feet of 4-inch steam main with 8-inch return was laid; also 457 linear feet of 7 by 8 foot subway was constructed in North Capitol Street, connecting the Government Printing Office and the new city post office, under four permits.

#### PRIVATE CONDUITS.

One electric-conduit connection in Fourteenth Street SW, was laid to the Bureau of Engraving and Printing, one pipe line to contain speaking tubes and two steam connections were laid across alleys.

## VAULT INSPECTIONS.

Applications for 89 vaults were acted upon during the year and 89 newly constructed vaults were inspected, located, and record sheets made. Record sheets were also made for 31 vaults located in previous years and for 5 old vaults located in connection with the current work.

During July and August, 1913, an inspector and skilled laborer were assigned to the work of locating old vaults in the business section of the city, and 369 vaults were located and field sketches made.

## WATER DEPARTMENT CONNECTIONS WITH THE SEWERAGE SYSTEM.

Three hundred and twenty-three permits were issued to the water department for sewer connections from fire hydrants, blow-offs, street hydrants, and watering troughs, and 375 connections were inspected and recorded.

## UNEXPENDED BALANCES OF APPROPRIATIONS 1901 TO 1918.

I respectfully recommend that construction appropriations for the sewerage system be made available until expended. There is no discernable advantage in the present practice of lapsing these appropriations with the fiscal year. The funds could be more effectively used if available until expended. The present practice not only entails the loss of a considerable percentage of each annual appropriation but because of this limitation the expenditure is in part, at least, uneconomical.

The following is a statement of the unexpended balances of the three principal construction appropriations from 1901 to 1913, inclusive:

Fiscal year.	Main and pipe sewers.	Suburban sewers.	Assessment and permit sewers.	Total.	Fiscal year.	Main and pipe sewers.	Suburban sewers.	Assess- ment and permit sewers.	Total.
1901	\$1,656.58 2,610.75 3,948.89 268.70 5,676.05 7,177.09 255.68 3,878.98	\$2, 287. 61 6, 745. 80 5, 762. 88 2, 072. 54 6, 926. 46 4, 796. 30 11, 088. 27 815. 05		\$3,894.14 9,356.55 9,711.27 2,341.24 12,602.51 11,975.39 11,298.95 4,698.98	1909	\$678. 12 622. 34 489. 36 3, 716. 32 119. 82 31, 096. 08	\$570.80 4,486.94 401.36 791.12 13.36 46,660.49	\$118.16	\$1, 248. 92 5, 109. 28 890. 72 4, 507. 44 251. 34 77, 876. 73

Very respectfully, your obedient servant,

Asa E. Phillips, Superintendent of Sewers.

Capt. R. G. Powell,
Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.

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TABLE No. 1.—Sewerage system contred

		Pipe sev	ver.		Main sewer
Order No.	Location.	Length.	Size.	Length.	Size.
5327 5331 5363 5442	Fillmore trunk sewer to bulkhead lines.  Maryland Ave. and G St. NE., between 7th and 15th Sts. Intersection of Massachusetts and Wisconsin Aves. and in parcel 41/1.  Between Anacostia and Pennsylvania Ave. bridges.	Fed.	Inches.	Feet. 958. 81 12.3 827. 55 1,743.75 2,142.3 466. 20 338. 77	8 by 5 feet. 8 feet by 4 feet 4½ inches Platform.  4 feet 6 inches by 6 feet  8 by 6 feet
5450	Bureau of Engraving and Printing.	995.00	12		•••••
5454	Right of way between Kenilworth	1,525.50	18	B	
5484	Äve and Anacostia River. Walter Reed Hospital, 13th and Dahlia Sts. to Elder; Dahlia, 13th to 14th.	2,618.90 302.90 1,060.00	18 24 12	451. 5 206. 3 ( 80. 79	3 feet
5487C	(12th St. SE., to established bulk- head line	}		4,314 91.1 54.75	PilingPlatform6 by 5 feet
5487D	(14th St. SE., to established bulk- head line.	}	¦	3,240 79	PilingPlatform
5487E	Commodore Barney Circle to estab-   lished bulkhead line.   Arkansas Ave. NW., between 14th	}	; ;	85 100 680. 5	4 by 4 feetPlatform
5333	and Decatur Sts.	} <b></b>	·····	1, 132. 47	9 feet 6 inches
5488	Alexandria Branch B. &. O R. R.	9		397.15	7 by 6 feet
5506	to established bulkhead line. 9th St., between Gallatin St. and Illinois Ave. and in Illinois Ave. between 9th and Kennedy Sts.			468. 65 1, 641. 90	6 by 6 feet
5499	Barry Place between 8th St. and Sherman Ave.	630.00	18	631.65	3 feet
5513	River Road from Davenport to 44th St. and in 44th St. to Western	3, 121. 60	18		
5517	Ave. Broad Branch Road NW., between Keokuk St. extended and McKin- ley St.	1,052.70	10		
5523	West of Kenilworth Ave. and south of Douglas Ave.	843. 10 2, 249. 00 33. 20	12 10 18	}	<u>                                     </u>
5518	Conduit Road, between Chain   Bridge Road and Weaver Place extended.	284. 60 302. 00 1, 492. 43	15 12 10	<b>}</b>	 
5535	7th St. NW., between I St. and Mount Vernon Place.	368. 50	12	[	l 
5536	Wisconsin Ave., Jenifer to Keokuk and 42d St.			ļ	
5441	Klingle Road, through right of way, Connecticut Ave. and Macomb	<b></b>			i
5524	Stickfoot Branch by-pass, Barry Farm, to the established bulk- head line—Anacostia River.				
	Total	17, 568. 43	ļ	11, 492. 79	

 <sup>\$11,348</sup> of above amount paid during 1913 is included in statement of total cost.
 \$850 paid by the Protestant Episcopal Cathedral Foundation, District of Columbia.
 \$4,075 paid from appropriation for river improvement.
 \$1,575.42 paid from appropriation "Building, Bureau of Engraving and Printing."

construction, fiscal year ended June 30, 1914.

A 30	Mate	rials.	Cos	ts.			
Allowance to con- tractor.	Charged.	Not charged.	Inspec- tion.	Pave- ment repairs.	Total cost.	Appropriation.	Contractor.
\$15,692.28	\$2, 892. 72	<b>\$9</b> 4. 39	<b>\$792.</b> 00	ļ	<b>\$22</b> , 471. 39	Suburban, 1914	George Hyman.
(11, 594, 27 (16, 061, 11 1, 102, 31	2, 361. 48 2, 461. 13 73. 22	17. 42 27. 85 186, 27	456. 00 39. 53 60. 00	Yes. Yes. \$13.08	1 14, 429. 17 18, 589. 62 2 1, 434. 88	Main and pipe, 1913. Main and pipe, 1914. Suburban, 1913	Do. Do. W. F. Brenizer Co
12, 295. 03	2, 249. 95	167. 23	431, 87		* 15, 144. 08	Suburban, 1914	Do.
1,061.01	115.85	254, 94	67.00	1.60	\$ 1,500.40	Main and pipe, 1914.	George Hyman.
6, 215, 78	507.60	2, 245. 09	234, 33	ļ	9, 202. 80	Suburban, 1914	W. F. Breniser Co
4, 223. 82	626.84	689.06	133. 30	30, 80	4 5, 703. 82	do	Do.
2, 373. 63	229.99	63, 88	35, 62		2, 703, 12	Main and pipe, 1914.	Do.
1,901. 27	221.08	37.98	26. 86		2, 187. 19	do	Do.
1,780.21	155. 51	91. 75	40.00		2, 067. 47	do	Do.
11,017.56	2, 477. 50	61. 52	331.00		13, 887. 67	Suburban, 1913	George Hyman.
17,071, 13 11,630, 71 6,957, 68	3, 813. 43 2, 216. 88 1, 238. 62	118, 82 164, 17 55, 22	504, 00 280, 00 253, 50	37. 35	21, 507. 38 7 14, 291. 76 8, 542. 37	Suburban, 1914dodo	Do. W. F. Brenizer. Do.
3, 158. 21	549. 55	68. 82	202. 50		3,979.08	do	Do.
5,867.47	383.77	1,908.55	382.00	260.31	8, 802. 10	Assessment and permit, 1914.	George Hyman.
1, 447. 94	80. 82	280. 70	96, 50	187. 53	2, 093. 49	do	W. F. Breniger.
3,317.14	249. 02	811.37	229. \3		4, 607. 36	do	W. F. Cush.
1,224.65 1,767.02	82, 14 129, 32	242, 01 424, 91	36, 00 109, 00		1, 584. 80 2, 429. 25	Suburban, 1914 Assessment and	W. F. Brenizer Co Do.
1, 161. 50	36. 63	98. 30	45.00	Yes.	* 1,341. <b>4</b> 3	permit, 1914. Main and pipe, 1914.	Do.
	! '					Assessment and	Do.
	ļ					permit, 1914. Suburban, 1914	George Hyman.
2,922,00	557. 22		258. 33		3, 737. 55	do	W. F. Breniser Co
144, 843. 73	23, 710. 36	8, 110. 25	5, 043, 17	530, 67	192, 238, 18		

\$75.02 contingent fee charged against this contract.
\$1,666.67 paid by Lynchburg Investment Corporation and \$1,597.07 paid by assessment and permit. 1914.
\$28.812.50 paid by appropriation for Anacostia River improvement.
\$67.08 contingency to be included; \$1,408.51 paid by Rich & Fits Simons; repaying to be done.

TABLE No. 2.—Sewage-disposal system contract construction, fiscal year ended June 30, 1914.

	Total Com- cost. pleted. Appropriation.	20, 107. 92 Yes Rock Creek main inter- ceptor.	35, 866, 33 Yes Anacostia main inter- coptor.	* 6, 226, 70 Yes Do.	29,747.78 No Rock Creek main inter-	19,430.57 No Do.	01,379.30
Cost of—	Repairs to pave- ments.	\$393. 84 1 \$20, 107. 92	1 35, 866, 33		4 29, 747. 78		457.34 1,882.72 101,379.30
-	Inspec- tion.	<b>\$393.84</b>	385.63	72.00	796.26	185.00	1,882.72
Materials.	Not charged to con- tractor.	\$28° 58	4, 135. 92 384. 12	2,2			457.34
Mate	Charge to con- tractor.	\$2, 510. 58	4, 135. 92	538. 69	520.23	367. 87	8, 073. 24
	Payment on con- tracts.	\$17, 174. 97	30, 960. 66	5, 571. 87	28, 431. 30	8,877.70	91,016.00
	Character of work.	Rock Creek main \$17,174.97 \$2,510.58 interceptor, sec-	Anacostia main in- terceptor.	do	Rock Creek main interceptor, sec-	tion No. 4. Rock Creek main interceptor, sec- tion No. 5.	
	Location.	Rock Creek Valley northward from Connecticut	Ave. East side Anacostla River between 13th and Penn-	Foot Howard Ave., Ana-	Zoological Park on west side of Rock Creek, south of	Kingle Ford Road, In right of way and Rock Creek Park between Klin- gle Ford Road and Pierce's Mill Road.	Total
	Contractor.	W. F. Brenizer Co	5220 W. F. Brenizer Co.,	E. G. Gammed	W. F. Breniser Co	5610 W. F. Breniser Co	
	No.	5191	2330	5833	282	2610	

1 \$15,624.47 of above amount paid during 1913 is included in statement of total cost. \$27,288.50 of above amount paid during 1913 is included in statement of total cost. \$11,500 of above amount paid during 1913 is included in statement of total cost. 4 Part payment.

TABLE No. 3.—Sower construction under permit eyetem from the appropriation for assessment and permit work for year ended June 30, 1914.

	1									
					Cost	Ţ				
	Location.	Length.	Size.	Amount of deposit.	To Dis- trict of Colum- bis.	To de- positor.	Total cost.	Amount returned.	For whom done.	
E E E	Fourteenth Street NW., between Euclid and Fairmont Streets Barrard Street NW., between Eighteenth Street and Lanier Place Grecham Place NW., between Fifth and Georgia Avenue.	79.0 104.0 313.1	Inches. 12 21 21	8145.00 550.00 90.00	\$137.14 550.00	\$137. 14 550.00 62.20	1, 100, 00 1, 100, 00 124, 40	\$7.8 8.77.8	Harry Wardman. L. E. Breuninger. Harry A. Kite.	
e bes	Third Street NW., between Rhode Island Avenue and T Street  Eleventh Street NE., between G and H Streets Thirteenth Street SE., between C and Walter Streets alley 1015.  Virginal Street SE., between C and Walter Streets alley 1015.	<b>~</b>	2222	8.75 8.75 8.75	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8 8 8 8 8 8 8	4 8 8 8 8 8 8	. 25.88 7. 25.88	C. L. Tankersley. Martin Roth. H. A. Kite.	
M M	F Street NW., between Twelfth and Thirteenth Streets  E Street NE, between Sixth and Seventh Streets	82.0 5.0 515.5	ងដដ	150.00 500.00	133.00 490.53	183, 01	200.01 200.00	8 ¢	James L. Parson. Kennedy Bros.	
SZE	Eighneenth Street bw., Joerween Kenyon had Killourne Street. Thirteenth Street between Belmont Road and Bilmore Street. Thirteenth Street NW., between G and H Streets.	210.0 50.0	23	<b>8</b> 24 88	211.09	211, 10 88, 07	22.28 21.24 21.24	ස් <sub>ද</sub> පිසි	Clarence F. Norment. R. J. Woodward.	
	Total.			2,022.00	1, 554. 6 2, 022. 00 1, 886. 00 1, 886. 08 8, 772. 08	1,886.08	8, 772.08	136.97		
1	<sup>1</sup> Changed to job No. 210,				Work to be done in 1915.	done in 19	1.			

TABLE No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1914.

					Cost of-		
Order No.	Location.	Length.	Size.	Material.	Labor.	Repay- ing.	Total cost.
100	Taylor St. NW., between New Hamp- shire Ave. and 5th St	Lin. ft. 317. 50	In. 10	\$116.57	\$393, 24		\$509, 81
101	9th St. NW., between Barry Place and		1	1			
102	Euclid St. Kennedy St. NW., between 9th St. and	100.00	12	37.42	119.82		157. 94
103	Illinois Ave. Wisconsin Ave. NW., between R and S	152.00	10	70.84	219.63		290.47
104	Sts	37.96	10	29. 61	100.50	··•···	130. 11
106	24th Sts	124.00	10	59. 59	166.50		226.09
106	and 18th Place	225.00	10	101. 34	473.81		575. 15
107	Florida Ave. NE., between North Capi- tol and P Sts.	. 33.00	8	9. 23	25.75	\$5.49	40. 47
	Harrison St. NW., between Wisconsin Ave. and 42d St.	212.00	10	76.82	224.56		301.38
108	Livingston St. NW., between 39th and 41st Sts.	75. 65	12	32. 17	90.50		122.67
109	9th St. NW., between Grant Place and H Sts.	179.00	12	95.42	274. 53	14. 40	384. 35
0 111	Allev of square 2008	23.00	12	10.56	40.88	9.00	60.44
112	Illinois Ave., between Decatur and Buchanan Sts.	439. 20	12	169.70	372.53		542. <b>23</b>
113	7th St. NW., between Crittenden and Buchsman Sts. Allison St. NW., between 7th and 8th Sts. 7th St. NW., between Allison and Bu-	278. 84	12	119. 12	202.56		321.68
114	7th St. NW., between Allison and Bu-	384.36	10	155. 23	351.62		506, 85
115	chanan Sts.  Rittenhouse St. NW., between 3d St. and North Dakota Ave.  Rittenhouse St. NW. between North Dakota Ave. and 2d St. Rittenhouse St. NW. between 2d St.	390.00	12	173.63	259. 25	······	432. 88
116	and North Dakota Ave	478. 70	12	215. 20	475.06		690. 35
117	Dakota Ave. and 2d St	234.55	12	100.07	308, 87	31.89	440. 83
118	and Right Road	117.00	10 10	43. 13 32. 91	41.68	74.73 3.50	159.54
119 120	1st St. NW., between U and V Sts	15. 10 76.00	12	29. 18	58. 00 133. 88	32.25	94. 41 195. 31
	Bts	818.00	10	155.08	379. 29	15.05	549. 42
121	Allison St., between 7th St. and Illinois	319. 90	12	132. 16	400.88		533. 04
122	Illinois Ave. NW., between Allison and Webster Sts	426.45	12	180. 10	522.25		712.35
123	Illinois Ave. NW., between Webster St. and Grant Circle	192, 85	12	89.76	239, 58		329, 34
124	Grant Circle NW., petween Illinois and	277, 80	12	129. 30	355.62		484.92
125	New Hampshire Aves		12	42.67	108.00		150. 67
126 127	Grant Circle and Webster St	386.40	10	155, 87	236.73		392. 60
	24th Place SE., between Ridge Place and S St	224. 30	10	95. 84	<b>159</b> . 15		254, 99
128	Wisconsin Ave. NW., between Chese- peake St. and line of River Road	874.00	10	151. 23	395.68	15.05	546. <b>9</b> 1
129	Otis St. NE., between 10th and 12th Sts.	134.00 182.00	15 10	154. 32	395.88		565 <b>. 25</b>
130	Nebraska Ave. NW., between Tunlow Road and Massachusetts Ave	580.00	10	219. 42	641. 10		860. 52
131 132	24th Place SE., between S and T Sts	353, 80	10 10	135. 73 131. 36	315. 90 296. 00		451. 63 426. 36
133	Varnum St., between 7th and 8th Sts 18th St. NW., between U and California Sts	90.00				25 10	264.56
134	Rhode Island Ave. NE., between 20th	80.00	18	64. 49	164. 88	35. 19	ı
135	and Hamlin Sts South Dakota Ave. N.E., between Myrtle	35.00	10	12.00	86. 12		48. 12
136	St. and Rhode Island Ave	50.00	10	18. 43	<b>55.</b> 16	13.64	87.23
187	Road Sherrier Place, north of Edmonds Place	410.00 486.20	10 10	158. 48 171. 18	558. 23 654. 07		716, 71 <b>825, 25</b>
138	Savannan St. SE., between 4th and 5th	178.34	8	50.55	262. 42	l	812.97
139	High St. SE., between Valley and Maple	66,50	12	26, 85	114.09	5.04	145.98
140	lst St. NW., between Kennedy St. and Oregon Ave. 1	37.00					
					••••••	••••••	********

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1914—Continued.

	•				Cost of—		
Order No.	Location.	Length.	Size.	Material.	Labor.	Repay- ing.	Total cost.
		Lin.ft.	In.				
141	Right of way parcel 165/1, at 26th and Evarts Sts. NE	123, 50	15	\$142.97	\$294.84	<b>.</b>	\$437.81
142	Evarts St. N.E., between 28th and 28th	454. 80	15	279.48	518. 89		798.37
143	Hobert Place west of Mount Pleasant Place NW	365.00	12	155.79	506.07		661.86
144 145	do	378.00 278.50	10 12	165, 60 127, 35	342. 91 404. 82	\$106.35	508. 51 638. 52
146	do. 4th St. NE., between G and F Sts. 33d St. NW., between Livingston and Morrison Sts.	268. 20	10	110. 17	288. 56	0100.00	398.73
147	33d St. NW., between Morrison and Mo- Kinley Sts.	330.00	10	127. 40	304.90	66, 16	498. 46
148	Harvard St., west of Lanier Place	217.00	21 18	395.92	429.82	00.10	825.74
149	28th St. NE., between Evarts and Frank-	57. 15	15	1			
150	lin Sts. 6th St. NW., between Newton and Otis	891.00	12	186. 24	418.50		604.74
151	Sts	313. 60	12	150.45	314.04		464, <b>49</b>
152	Adams Mill Road, between Summit Place and Ontario Road	57.00	8	28.49	112. 73		141.22
	Florida Ave. NE., between Holbrook and H Sts Buchanan St. NW., between 7th St. and	126, 50	12	63. 17	195.50	13.57	272. 24
153	Illinois Ave.  NW., between Puchanan	204.00	12	88. 83	227.37	J	316. 20
154	and alison statement and all the statement and alison statement and alison statement and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice and alice a	427.00	12	174. 90	395.07		569.97
155	Allison St. NW., between Illinois Ave. and 5th St. Buchana St. NW., between 7th St. and	170. 72	12	56.73	132. 59		189. 32
156		199.00	12	94.57	118.00	' ,- <b></b> -	212.57
157	Kansas Ave. NW., between Buchanan and Allison Sts.	135, 00	10	47.47	94.60	 	142.07
158	28th St. SE., between Pennsylvania Ave. and Q St.	556. 20	10	201.39	429.71		631.10
159 160	and Q St. 28th St. SE., between Q and R Sts West Virginia Ave. NE. between 8th	461.90	10	171.58	526. 39	49. 21	747. 18 304. 94
161		195.00	10	91. 27	213.67	l	
162	Livingston St., between Connecticut Ave. and 37th St., and in 37th St Cathedral Ave. NW., between Klingle Road and Connecticut Ave	414. 10	10	162.86	361.38	52. 41	576. 6 <b>5</b>
163	Kalorama Koso, Detween 17th St. and	245. 40	10	107. 89	288.69		396.58
164	S St. SE., between 14th and 16th Sts 16th St. NE., between Lawrence and	21. 86 76. 69	12 18	33. 28 117. 12	81. 25 191. 40	4. 73	119. 26 368. 52
165	Monroe Sts	182.00	10	63.63	301.47	ļ	365. 10
166	Monroe Sts	182.50	10	65.85	158.43	<b></b>	224. <b>28</b>
167	14th St. SE., between Good Hope Road and S St	406.05	12	305. 50	590. 84		896.34
168 169	35th Place NW., between T and U Sts W St. NW., between Flagler Place and	299. 30	10	128.17	295. 71	l	423.88
170	Girard St. NE., between 14th and 13th	222.00	12	114.34	287.74	11.22	413.30
171	Sts. D St. NE., between 17th and 18th Sts. V St. NW., between 2d St. and Flagler	428.00	10	148.63	641.10	145. 49	935. 22
172	Place <sup>3</sup>	ļ <u></u> .					
173 174	2d St. NW., between V and W Sts 3d St. NE., between S St. and Seaton	175. 70	10	97. 10	221.61		354. 15
175	Place.  McKinley St., between Broad Branch Road and Nevada Ave	151.50	12	53. 48			237. 62
176	Barry Place, between 8th 8t. and Georgia	1	12	53. 73	119.50		
177	Ave. Corbin Place NE., between Tennessee Ave. and 13th St	1	12	70. 81	232.81	14. 32	317.94
178	Unshir St. Nw., Detween win and Kin	329.00	12	153. 92	470. 83	í	624. 75
179	9th St. NW., between Barry Place and	325. 70	12	160. 89	452. 81	1	613. 70
180	do	14.30 204.00	12 12	6. 07 78. 94	21. 75 245. 24		27. 82 324. 18
181	Park Place NW., between Kenyon and Lamont Sts	312.20	12	146.14	426.12	l	572. 26
	<sup>1</sup> Charged to tob 846.			2 Cane	•	Ca	ممآء

<sup>1</sup> Charged to job 846.

Canceled. Digitized by Google

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1914—Continued.

Order	the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Comment.			Cost of-		
No.	Location.	Length.	Size.	Material.	Labor.	Repay- ing.	Total cost.
182 183	Weaver Place and in Potomac Ave ist St. SW., between B and C Sts	Lin. ft. 443. 40 48. 50	In. 10 12	\$170, 13 18, 71	\$554.28 60.56	\$13.00	\$724.4 92.2
184	1st St. SW., between B and C Sts Morrison St. NW., between 39th St. and Connecticut Ave	190.00	10	80.80	200.75		281.5
185	Lowell St. NW., between 35th and 36th Sts	343.00	10	122.22	380. 56		502.7
186	Sts 9th St. NW., between Barry Place and Euclid Sts	14.30	12	6.07	17.24		23.1
187	Girard St. NE., between 20th and 22d Sts	581.70	12	388.71	1, 123. 25		1,511.
188	McKinley St. NW., between Connecticut Ave. and 39th St.	223.50	10	96. 24	268.63		364.8
189	Galena Place and Conduit Road	{ 242.00 60.80	10 12	} 165.61	420.59		586.3
190	S St., between 14th and 16th Sts. SE	323.31	18	386. 52	770.17		1,156.6
191	Olive St , between Polk and Quarles Sts. NE	197.00	12	128.86	717.93		846.7
192	14th St. NW., between Montague and Madison Sts	340.60	18	282.66	614.72	34.91	932.2
193	20th St. NE., between Girard and Ham-	282.07	10	98.47	322.99	150.35	571.8
194	Polk St., between Kenilworth Ave. and Olive St	{ 40.60 275.80	18	} 171.59	608. 81		780.4
195	Olive St., between Polk and Quarles Sts. NE	197.00	12	130.00	717.94		847.9
196	Mount Olivet Road NE. between Mon-	202.98	12	104.39	306. 61		411.0
197	tello and Trinidad Aves Dennison Place NW., between Sheridan and De Russey Sts	260.91	8	68. 23	384.50	1000	452.7
198	Mount Olivet Road NE., between Mon-	305.02	12	166. 28	492.03	85.05	743.3
199	tello and Trinidad Aves.  Kentucky Ave. SE., between South Carolina Ave. and B St	1	1	10.527	100	80.00	10000
200	Brentwood Road NE., between Rhode	64.00	12	24.78	97.83		122.6
201	Brentwood Road NE., between Rhode Island Ave. and 14th St. D St. SW., between Delaware Ave. and	271.56	10	95. 97	364. 53	31.37	491.8
202	Girard St. NE., between 13th and 14th	142.50	12	55.30	153.83	16.11	225.2
203	Sts Olive St., between Polk and Quarles Sts.	140.00	10	50. 43	229.83	41.43	321.0
204	NE 13th St. NE., between Evarts and Frank-	197.00	12	128.84	717.94		846.7
205	iin Sts.  West, north, and south alley, square 2722.  Montague St. NW., between 14th and	340.60	12	115.87	442.79		558.60
206	15th Sts	409.40	12	190.64	534.93		725.5
207	Montague St. NW., between alley and 15th St.	237.02	12	94.97	300.45		395. 45
208	Trinidad Ave. NE., between Raum and Mount Olivet Road	303, 00	12	118.68	493.44		612.13
209	Woodley Road, between 38th St. and	217.50	12	89.65	590. 10	35, 16	714.91
210	Wisconsin Ave. NW 19th St. NW., between Belmont Road and Biltmore St	11	1 25	1100,00	10.49		10.49
211	D St. NW., between 26th and 25th Sts P St. NW., between 1st and 3d Sts Jewett St. NW., between Sherrier Place and Conduit Road.	82.00 57.00	15	53.72 43.28	119.22	*********	172.94
212	P St. NW., between 1st and 3d Sts	57.00	12 12	N	103.30	20.14	166.72
213	and Conduit Road	301.10	10	217.96	600.54		818, 50
214 215	15th St. NW., south of Dahlia St	228.00	10	92.30	249.19		341.49
216	l and Conduit Road.  15th St. NW., south of Dahlia St.  17th St. NW., between Kilbourne Place and Lamont St.  Shepherd St. NW., between New Hamp- shire Ave. and 5th St.  Outney St. NW., between 4th and 5th Sts.	200,00	12	106.76	357.18	(*)	463.94
	shire Ave. and 5th St.	517. 80 147. 00	12 18	205.23 117.01	538, 53 211, 53	(2)	743.76 328.54
217 218	(Varnum St. NW., between 7th St. and	5.00	10	} 196.35	267.37	(-)	463.72
219	Orant Circle	1 147.00	24	120.00	201.01		100.12
	New Hampshire Ave. between Quincy and Randolph Sts. Brown St., NW., between Meridian Place and Newton St.	150.00	12	66,32	237.33		303.65
220	and Newton St.	100.00	12	52,36	158.28	(4)	210.64
221A	Harvard St., Detween Lanier Place and	12.00	10	242,12	456, 68		698, 90
221B	Mount Pleasant St	379.70	15	91.61	200, 17		291.78

Construction postponed until fiscal year 1915.
 Repaying charge not yet reported by surface division.

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1914—Continued.

					Cost of-		
Order No.	Location.	Length.	Size.	Material.	Labor.	Repay-	Total cost.
-	(15th St. NW., between Webster and Al-	Lin. ft. 23.00	In. 10		arma er		
222 223	lison Sts	865.70	24	<b>\$</b> 501.39	\$590.85	\$3.15	\$1,095.39
224	Sts. 1 Aspen St. NW., between 6th St. and Piney Branch Road Sth St. NW., between Taylor and Up-	178.00	12	64, 46	187. 22	7.85	259.05
225	SDUF SUS	347.00	12	139.31	371.02	7.60	510.33
226 227	G St. NW., between 9th and 10th Sts Georgia Ave. NW., between Barry and	119.00	12	104.85	264.06	(3)	368.91
228	15th St. NW., between Allison and	195.81 388.30	24 21	277.10 429.05	412.90 565.48	243.12	933, 12 994, 53
229	Buchanan Sts Conduit Road, between Cushing and Dana Places	429.50	12	158.84	484.25		643.00
230	Massachusetts Ave. SE., between 14th	109. 10	12	61.97	151.36		213.33
231 232	4th St. NW., between Conduit Road and P St. 14th St. NW., between Hamilton and	654. 15	10	269.91	531.87		801.78
233	Ingraham Sts. Raleigh St. SE., between Trenton Place and Sterling St.	335, 00	12	145. 44	297.12	(3)	442.56
234 225	and Sterling St.  Hamlin St., westward from 7th St. NE.  V St. NW., between 1st and North	222.50 308.00	12 12	94.96 123.55	203. 01 380. 66	12. 25	297. 97 516. 46
236	Capitol Sts	361.13 189.85	12 12	154.10 97.67	394.60 225.84	140.30	548. 70 463. 81
237	Alley, square 369. Livingstone St. NW., between 39th and 41st Sts	104.50	12	35.86	121.88	(3)	157.74
238A 238B	Quincy St. NW., between 5th St. and Rock Creek Church Road. Rock Creek Church Road NW., between	218. 45	18	190.09	315.84	(3)	505.93
238C	Quincy and 4th Sts	304.15	15	190. 43	352.90	(3)	543.83
239	4th St. NW., between Rock Creek Church Road and Randolph St. Olive St. NE., between Quarles St. and	41.65	12	15.35	59.63	ļ <b>.</b>	74.98
240	Eastern Ave.  Massachusetts Ave. NW., line of Mur-	82.00	12	44.63	72.75	(5)	117.38
241	dock Mill Road. Nebraska Ave. NW., between Tunlaw Road and 45th St. Plorida and Trinidad Aves. NE.	509.30	12	181.32	514.75	(3)	696.07
242 243 244		100.00	i2	18.39 58.91	44.37 136.06	(8)	62.76 194.97
244 245	41 St. SW., between M and N Sts South Capitol St. SW., between O and	30.50	12 10	37.08	98,58		135.66
246	P Sts. Carroll burg Place SW., between O and P Sts.	267. 00 219. 00	10	126.74 102.35	249.90 149.86	(*)	876.64 252,21
247	O St. SE., between Carpenter Place and	300.00	10	121.22	443.82	(9)	565.04
248	Franklin St. NE., between 14th St. and Brentwood Road	100.00	10	53.34	51, 25	(1)	104.50
249	Ellicott St. NW., between Wisconsin Ave. and 41st St. Kehliworth Ave., between Nash and	330.00	10	133.58	257.13	(3)	390.71
250	Ord Sts. NE	Manhole.		20.51	50.00	<b> </b>	70.51
	Total	35,834.50		17,928.72	45,850.99	1,598.84	65,378.55

Construction postponed until fiscal year 1915.
Repaying charge not yet reported by surface division.
Work to be completed in 1915.

Table No. 5.—Sewer construction from the appropriation for main and pipe seven, fiscal year ended June 30, 1914.

						Cost of—		
Or- der No.	Location.	Length.	Size.	Basins built.	Material.	Labor.	Repay-	Total cost.
500	G St. SW. between 9th and 10th Sts.	Feet. 237. 80	In. 12		\$148.40	\$378.03	\$80. 85	\$607. 25
501 503	Georgia Ave. and Jefferson St.	252, 20 65, 00	12 12		68. 60 39. 24	44. 20 80. 53	20. 25 4. 35	123.05 124.12
504	NW., northeast corner 20th and K Sts. NW., southeast corner	3.00	12	1	16. 27	38. 41		24.68
505 506	V St. and the Avenue of the Presidents, southwest corner	9.00 32.00	10	1	19. 58 15. 90	32. 57 57. 81		52.15 73.71
507 508	Alley of square 910. 22d St. NW., between F and G Sts. 22d St. NW., between Virginia Ave. and F St.	229.70	12		108.82	323.55	36.40	468.77
509 510	Ave. and F St	241.00 290.30	18 12		228, 15 104, 76	435. 24 451. 71	52. 65 198. 14	716.04 814.61
511	12th St	57.00	10	1	36.97	110. 75		147.72
512 513	NW., southwest corner K St. NE., west of 8th St Connecticut Ave. between Ord-	30.00 51.00	10 8	1	29. 40 28. 49	54. 12 92. 25	3, 30	83. 52 124. 04
514	way and Porter Sts	63.00	15	1	56.33	82.94		139. 27
515	NW., northeast corner Connecticut Ave. between Ord- way and Porter Sts	33.00 12.00	12 18	1	12. 31 25. 23	32.06 46.62	15. 32	59.69 71.85
516	way and Porter Sts  M St. NW., between 16th and 17th Sts	206. 50	12		103. 96	319. 11	49.00	472.07
517 518	Lanier Place, between Harvard St. and Quarry Road	148.60 9.00	12 10	5	115. 55 19. 26	175. 06 34. 24	<b> </b> .	290. 61 53. 50
519 520	Alley of square 912	293.00 149.50	12 10		145. 01 87. 04	459. 43 176. 20	191. 13 139. 79	795.57 403.00
521 522	Alley of square 180 John Marshall Place, north of Pennsylvania Ave. NW	363. 80 152. 40	12		183. 10 83. 07	629. 73 357. 36	237. 59	1,050.42 440.43
523	southeast corners	78.00	10	2	60. 43	136. 39		196. 82
524 525	4th, 5th. and 6th Sts. corners on M St. NW Pennsylvania Ave. SE., be- tween 3d and 4th Sts	18.00 36.00	10 18	} 1	70. 87	160. 25		231. 12
526	18th St. NW., between L and	419. 80	12		279. 43	811. <b>2</b> 6	418. 24	1,508.93
527 528	M Stsdo Northeast corner 23d St. and	202. 30 308. 20	12 12		123. 25 141. 08	554. 58 651. 66	39. 93	717. 76 792. 74
529	Wyoming Ave. east side 23d St. Monroe St., west of 14th St.,	36.00	12	2	54. 02	109. 13		163. 15
530	sidewalk	27.00 80.00	12	1 2	19. 72 66. 71	t3. 41 129. 47	2.97	96.10 196.19
531	10th and B Sts., southeast corner.	1 15 00	12 6	} 1	23. 80	52. 12		75 92
532 533	7th St. NW., south of B, at park entrance	18.00	12	2	26. 30	62. 94		89 24
534	12th St. NW., south of B, at park entrance	15.00	12 12	} 2	39. 23	74. 99		114. 22 91. 04
535	entrance	24.00	12	, -	30.31	60. 73	•••••	
536 537	34th and Macomb Sts. NW 17th and Church Sts. NW	33.00 39.00	12 12	2 2	58. 30 48. 95	111. 63 88. 75		169, 98 137, 70
538	northwest corner	17. 00	15		12. 80	38.70	11. 11	62.61
539	G St., between North Capitol and First. Jackson Alley, between North Capitol and First Sts. NW	49. 20 200. 00	18 24		42. 28 305. 88	137. 41 836. 06	38, 96 298, 49	218.65 1.440.43
540 541	Alley of square 56 in 23d St NW.	211.00	24		548, 32	708. 30	298, 50	1, 555, 12
542 543	between G and H Sts 19th and G Sts. NW 23d St. and Kalorama Place,	69.00	12	(3)	14. 07 23. 48	19. 46 65. 00	9, 93 45, 14	43.46 133.62
544	southeast corner	27.50 { 32.50 20.00	10 24 15	}1	30. 10 62. 09	55. 23 106. 89	49. 44	85.33 · 218.42

Table No. 5.—Sever construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1914—Continued.

Or-						Cost of-		
der No.	Location.	Length.	Size.	Basins built.	Material.	Labor.	Repay- ing.	Total cost.
545	North Capitol and G Sts	Feet. 12.40 9.00	In. 24 15	} 2	\$78. 45	\$151. 24	\$38.96	\$268. 65
546 547	Alley of square 878	36.00 392.00 38.00	12 10 18	,	201. 14 30. 46	532. 46 90. 64	268. 23 17. 88	1,001.83 138.98
548 549	L St. NW., between Connecti- cut Ave. and 17th St		ļ	2	53. 38	110. 55	5. 10	169. 03
580	New Hampshire Ave Macomb St. NW., between Con-	25.00	10	1	24. 88	56. 12		81. 00
551	necticut Ave. and Ross Place Mount Pleasant St. NW., just	9.00	12	3	82. 24	109. 51		251. 75
552	south of Hobart Place Thornton Place and Kalorama	36.00	10	1	29. 83	51.00		80.83
553 554	Road, southwest corner 44 St. SW., between M and N Sts.	28.50	10	1	27. 52	57. 18		84.70
566	Fennsylvania Ave. SE west of 15th St East curb line 18th St., at tan- gent point at circle in Harvard St	54.00	10	1	37. 31	76.06		113. 37
567	Changed to lob No. 835	12,00	12	1	21. 24	<b>5</b> 1. 13		<b>72.</b> 37
568 569	19th and Newton Sts., southeast corner 19th and Park Road, northwest corner. Hobart St. N. W., about 750 feet west of Mount Pleasant	63.00	10	2	48. 85	130. 21	6. 67	185. 73
561	St	27.00 6.00	12 10	1 Manhole	26.71 26.06	62. 19 85. 98	4. 81	88. 90 116. 85
562	at 14th St. 7th St. NW., north of Rock	29.00	12	1	21.32	81.38		
563	Creek Church Road Warder St., just south of Rock Creek Church Road	27.00 36.00	12	1	30. 27	84, 12	7. 46	102. 70 121. 85
564	Rock Creek Church Road in line of west curb of Park Road	24,00	12	1	25. 35	51. 36	4.80	81.51
565	Warder St., just south of Quebec Place N.W	24.00	12	1	40.89	<b>82</b> . 79	4, 80	
586	Northeast corner of Georgia Ave. and Quebec Place	33.00	10	1	27.80	43.75		71. 55
567 586	Quebec Place, east of Georgia Ave	18.00	10	1	22.85	50. 63		73. 48
588	Place 1	·····	ļ	ļ			ļ	••••••
570	Ave. 1		·····		!		\ !	
<b>571</b>	shire Ave. and Princeton Place	21.00	10	1	25. 69	67. 50		98. 19
572	Otis Place, east of New Hamp-						¹ <b></b>	
573	shire Ave	24.00 27.00	10	1	25. 49 29. 58	52. 62 58. 88		78. 11 88. 46
574	Newton Place, east of New Hampshire Ave.	27.00			20.00	<b>U</b> CC 3G		00.40
575	Macomb St., between Ross	18.00	12	1	24. 73	53.74	2. 23	80.70
576 577	8th St. and Maryland Ave. NE 7th St. and Maryland Ave. NE.	28.00	42	J	152.46	700.36	,	852.82
578 579	do	106, 50 25, 00		(2)	98.65 157.21	567, 33 542, 38	(²) (²)	665, 98 699, 59
580	West side of 8th St. at Maryland							
561	P St. NW., between 10th and	·····	ļ		·	· · · · · · · · · · · · · · · · · · ·	ļ	
582 583	18th St. NW., between B and New York Ave	 	ļ	ļ			ļ	
963 584	and 18th Sts.4do.1							
585 585	do. 1 Alley of square 878.	6.00	15	1	20.66	26, 87		47.53

Table No. 5.—Sewer construction from the appropriation for main and pipe sewer, fiscal year ended June 30, 1914—Continued.

Or-						Cost of-		
der No.	Location.	Length.	Size.	Basins built.	Material.	Labor.	Repay- ing.	Total cost,
	To Name of and in 6th St	Fea.	In.					
588	In Newton St., and in 6th St.	39.00	10	2	\$16.46	<b>\$92.</b> 75		\$139.21
589	Otis Place	27.00	12	1	26.71	58. 35	<b> </b>	85.06
590	Northeast corner Lincoln Road and V St	36.00	10	1	29.80	60.80	\$7.80	98.44
591	Northeast corner Lincoln Road and U St	21.00	12	1	25.56	61, 25		86.87
592	and U St	21.00	10	1	23.00	38, 39		61.30
598	North and south curb line of			_				
594	east of 18th Front, No. 1633 V St. NW. New Jersey Ave. and Warner St. (See job No. 846.)	39.00	12	(6)	46.84	92. 25 19. 96	3,30	139.09 23.36
595 596	New Jersey Ave. and Warner St.	40.00	12	Manhole.	19. 67	36. 25	•••••	55.92
597	NOPTOWERT COPDER SED BUG COF	45.00	12	1	32, 17	55, 49	7.46	96.13
598	lege Sts. 27th and I Sts. NW., southeast	l	1	1	21.24	57.93	7.30	1
599	corner	12.00	12			73.87	•••	79.17
600 601	NW	9.00	8	(4)	4.38 2.65	16. 50	10	88.25 19.15
602	Wisconsin Ave., about 585 feet	39.00	15	2	55. 40	<b>129</b> . 10		184, 50
603 604	Alley of square 574			Manhole.	20. 23	42.37		62.60
605	Sts Crossing 18th St. NW., in line	249. 40	12		171.52	457. 45	277.20	906.17
606	Of F St	57.00	15		65.64	122.59	<b> </b>	188.23
000	Crossing 18th St. NW., in line of G St	51.80	18		45. 39	130. 85	<b> </b>	176.34
607	Vicinity of Harvard St., Quarry Road, and Adams Mill Road	48.00 81.00 6.00	10 12 15	5	156.86	354. 17	<b> </b>	511.03
608	4th St. NW., in line with Wash- ington St.			Manhole.	10.57	27.84	8.25	46.66
609 610	Reservation 113			Manhole. Manhole.	3. 49 11. 59	11. 19 28. 90		14.68
611	In park south of B St north, be- tween 16th and 17th							
612	Florida Ave. NW., just west of 1st St		l	Manhole.	14.21	25. 56	6.34	46.11
613 614	13th St. and Kentucky Ave. SE. R St. NW., between 29th and	69.00	12		26.64	88.62	25. 42	140.68
615	30th Sts	18.25	10	Manhole.	22.44 16.68	40.00 40.00	7.75	70. 19 56. 68
616	25th St. NW., at K St	33.50 39.00	15 12	) (r)	64.08	171. 62	39.36	275.01
617	N St. NW., just west of 11th St	II 24 M	10	) 	2.50	2.65	1.54	6.00
618	N St. NW., just west of 11th St Avenue of the Presidents and Q St. NW., southeast corner G St. NE., between 7th and 8th	18.00	10	1	37.00	93. 26	1.65	131. 91
619	G St. NE., between 7th and 8th	ļ	<b> </b>					
620	R St. NW., between Vermont Ave. and 10th St		<b> </b>			•••••		
621	of W St.4	<b> </b>	<b> </b>				<b> </b>	
622	of W St.4	48.00	10	2	65. 50	149. 99	ļ	215. 49
628	BL NW	72.00	10	2	90. 35	142.69		233.04
624	Sherman Ave. and Girard St.	114.00	10	8	90.35	160. 11	<b> </b>	250. 46
625	St. NW.	81.00	10	2	99.30	185. 27	<b></b>	284. 57
626	NW	27.00	10	1	25. 19	55. 50	<b> </b>	80.69
627 <b>628</b>	I Maryland Ava and () Nt. N.K.(	F4 AA			40.00	74 10		118.07
029	Kennedy St. and Illinois Ave.; Kennedy St. and Georgia Ave. 9th and Kennedy Sta	54.00 57.12	12	2 2	43. 89 59, 49	74. 18 99. 18	1	158.67

Table No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1914—Continued.

Or-						Cost of-		
der No.	Location.	Length.	Sine.	Besins built.	Material.	Labor.	Repay- ing.	Total cost.
630 631 632 633 634 635 636	Illinois Ave. and Ingraham St  22d and H St. NW., crossing H St  3d and F Sts. NE.; 3d and E Sts.  NE.; 2d and E Sts. NE.  26th and Water Sts. NW  Intersection of Maryland Ave.  and G St. NE.  12th and B Sts. north, NW  B St. trunk sewer—concrete invert.	Feet. 6.00 70.80 10.00 28.60 9.00 45.00 15.00 79.70 138.00	#n. 10 12 15 8 10 12 10 15 15 15	}	\$43. 39 48. 54 76. 38 29. 88 46. 11 89. 35 143. 02	\$143. 25 102. 19 154. 14 108. 06 148. 56 215. 80 65. 98	(*) \$3. 66	\$187. 14 154. 39 230. 52 137. 94 194. 67 305. 15 209. 00
	Total	8, 008. 87	98		7, 161. 79	17,769.16	3,002.15	27, 983. 10

<sup>1</sup> Canceled.
2 Repaying.
3 Junction chamber.
4 Construction postponed until fisca, year 1915.

<sup>Pipe mended.
Interceptor connections.
Gutter drop.
To be completed 1915.</sup> 

TABLE No. 6.—Sewer construction from the appropriation for surburban sewers, fiscal year ended June 30, 1914.

Total	\$530, 29 640, 43 144, 32 566, 40 206, 31	798.36	260.25	134. 13 296. 81 108. 20 57.05	1,071 184.8 184.8 185.8 186.8 186.8	287. 54 568. 90 517. 79 58. 06
Repay-	8		16.93	47. 53 10. 16		3. 67
Cost of— Labor.	52.56 53.56 53.56 53.56 53.56 54.56 54.56 54.56 54.56	530 38 530 38	204. 13	111.07 176.85 164.83 86.84 57.085	212 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25	262 335, 98 396, 98 42, 51
Material.	51.03.89 145.83 145.17 51.07 76.81	354. 88 156. 19	48.19	25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25 25 25 25 25 25 25 25 25 25 25 25 2	27.7.0 20.03 20.03 20.03 20.03	24. 60 214. 28 181. 30 10. 54
Character of work.	1 manhole. 2 manholes. 3 manhole. 4 manhole.	Shaft. Span		2 manholes. 1 manholes 1 do., Special construction.	2 do 2 manholes. Culvert 8.5-foot transition section.	34.2-foot floor Basin and tide gate Backilling
Size.	Inches. 100 120 120 120 130 130 130 130 130 130 130 130 130 13	•	12	2222	322	22 22
Length.	Lin. /l. 378.00 378.00 380.00 67 140.00 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67.50 67	26.15	124.50	4484 5588	960 107.00 25.00	400.00 27.40
Location.	Nineteenth Place between Bryant and Channing Streets Thirtieth Street NW., between Military Tood and Chespeake Street Thirtieth Street NW., between Chesapeake and Brandywine Streets Thirtieth Street NW., between Brandywine and Albemarle Streets Hamilton Street NW., between Georgia A venue and Ninth Street Alby of square 2001.			Third Street NW, between Rhode Mand Averue and T Street Alloy of square 5804 W Street NW, between Fourth and Third Street Fourth Street NW, near W Street, southeast corner Fourth and W Streets NW Chiego Street trunk, as established bulkhead line Chiedro Parach I as established bulkhead line Chiedro Parach I as established bulkhead line	Annocate trunk sewer, at established bulkhead time. Butkernut Street, between Eighth and Georgia Avenue Butkernut Street, between Pincy Barnet Rood and Eighth Street. Canal Rood, between runk sewer and existing culvert under Canal Road. Canal Road, between culvert under Canal Road and culvert under Canal Road.	Culvert under Canal Road Culvert under Canal Road Culvert under Canal Road Culvert under Canal Road Avenue of the Fresidents, between Irving and Lamont Streets Between Accarden Branch Ballmore & Ohio Rallroad and established bulk Beaven And Answadra Branch Ballmore & Ohio Rallroad and established bulk Brand line, Answadra Branch
Oder-	SS 25 25 25 25 25 25 25 25 25 25 25 25 25	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	22222	222222 222222	22222	38888

00.711
30.83
nd Barry Place; northeast corner Sherman Avenue 18,
= -
Designe Streets
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• :- ::
28.08
153.00
1 02

TABLE No. 7.—Sewer construction under whole cost system from miscellaneous trust fund deposits, for fiscal year ended June 30, 1914.

order No.	Location.	Length.	Sige.	Remarks	Amount of deposit.1	Cost of work.	Amount re- turned.1	For whom done.
1000	F	Lin. feet.	Inches.	Work reported 1913	\$ \$381.38	\$208.99	\$172.89	Massachusetts Avenue Heights Syndi-
1001	Massachusetta Avenue Heights, near junction of Thir-			Stream crossing	\$ 570.98	448.35	122.63	gate. Do.
1002	Ġ			Work reported 1913	\$ 156.54	166.54	:	Lynchburg Investment Corporation.
100	Ö	412.10	10		\$ 585.00	585.00		Do.
98		33.00 33.00	22		190.00	28.08 24.03	13.30	O. S. Oswell. Samuel Shapiro.
100	H	268.00	90		350.00	286.90	64.10	Bev. A. M. Mark.
1007		33.00	21	3 basins 1	(a)500.00	(a) 499.78	<b>(e)</b>	Massachusetts Avenue Heights Byndi-
1008	F	22.00	12	do	3	<u>@</u>	<b>®</b>	Do.
90	A	18.00	21	2 basins	3	3	3	Do.
1010	Thirty-second Street, at Parkwood Drive.		12	đ	3	3	(	É
101	_		121	op	<b>.</b>	<b>1</b>	<b>.</b>	Ď.
1013	Alley of square 2591, be G Street NE., between	97.78	22		26.03 20.03 20.03	376.39 193.76	8 5 5 7	L. E. Breuninger. Samuel S. English.
101	Adams Mill Road between Summit and Ontario Road.	:	9	Excess excavation	9.8	54.45	<b>3</b> 5	Mark O. Davis.
100	_	38.8	12	3 basins	<b>(4)</b>	(a)	<u> </u>	Do.
88	Alley of square 105.  Thirty-seventh Street NW. in line of O Street.	<u>:</u>	13	1 manholedo	88 88	4.2 2.5	4.0 8.7	Wm. H. Linkins. Rev. A. J. Duarte.
8	Macomb Street, in line of	_	22	1 basin	(c) <del>600</del> .00	(0)543.18	(0) 56.82	Charles A. Platt.
ğ		88	12	2 basins	<b>20</b>	<b>1</b>	<b>E</b>	Do:
88	_		2 *		88	88	R AK	Davis Construction Co.
55	Thirty-second Street and Cleveland Avenue NW.		2	1 basin	188 188	8	2.5	D. J. Howell & Son.
	_			e6	3	3	}	•
<b>3</b> 2	<b>5</b>	9.09	22		110.00	108.64	1.36	
1080	Fifteenth Street and New York Avenue NW.		i	Moved convenience	18.76	12.56	6.30	National Saving & Trust Oc.

118.96   Fulton R. Gordon.	4.68 L. P. Stewart. 54.39 J. H. D. E. Slbour.	12.16 Marsh & Peter. 2.57 Woods Hargan.	HH.		21.86 A. C. Moses Construction Co.	10.01 Washington Ry. & Electric Co.	22.39 Commerce Building Co.	13.66 A. B. Mullett & Co.	6.93 E. C. Heald.	. 54 Bev. J. M. O'Brien.	_	16.67 D. B. Gattwals.	10.74 Leon Mooser.	* 61.12   Charles E. Wire.	4.89 H. E. Allangon.	6.08 Penusylvania Railroad Co.	7.39 B. M. Haward. 62.14 A. P. Clark.	1,134.61	Work incomplete, repaying to be charged, Construction postponed until fiscal year 1915.
086.02	500 200 200 200 200 200 200 200 200 200	2 2 2 2 2 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 2	3 % 3 %	586.10	18.16	88	17.00	463.85	28.07	12.6	<b>X</b>	88	4.8	164.88	10.11	73.92	7.61	8,888.24	incomplete
900.00	200 200 200 200 200 200 200 200 200 200			8	<b>\$</b>	900.00	38 38	450.00	<b>9</b> 9	126.00	<u>:</u>	100.00	15.00	216.00	16.00	80.00	15.00 500.00	10,022.75	* Work
		12 Besin connection	<u>9</u> 2:	2	Paving sidewalk	98		12 \		_	×	15	Pumping out base-	13	0 10	12 1 basin	Y branch	10,022.75	single deposit.
417.30	883	388	88	3		88 88	5 ;	××					•	8	×	8	:×	≈	18
_	23:	288 288 288			<u>i</u>			28.8 8.8 8.8 8.8	<u>.                                    </u>	88	3	27.50		88.00	6.50	8.8	260.30	4,002.75	ed out
Nevada Avenue and Broad	Braceh Road. L. Street St., between Twelfth and Thirteenth Streets Alley of square 99.		Hamlin Street NE, west of Twenty-fifth Street Alby of equare 545	Dahlis Street NW., between Fourteenth and Fifteenth Streets.	1040   Kentucky Avenue B.E., between Bouth Carolina Avenue		Alley of aquare 106	_	1045 Eighteenth Bireet NW., between Connectiout Avenue 13.5		Eleventh Street NW., between Fairmont and Otrard	1049 Warder Street NW., between Kenyon and Lamont 27.56	t of 1317 H Street NW	1061 Ontario Road NW., between Lanier Place and Colum-	h Street NE., between Hamlin and Irving	venue SE., about 290 feet west of New Jersey	1064 Alexandre 809. 1066 Crossing O Street in line of South Capitol and in O Street 259. Detween South Capitol Street and Carrollburg Place.	Total. 4,002	<sup>1</sup> Similar letters indicate those jobs constructed out of single deposit. <sup>2</sup> Balance of 1913 deposit.

TABLE NO. 8.—Sever construction from mixellaneous appropriations, fixed year ended June 30, 1914.

		Sewer laid,	laid.			Cost of-			
No.	Location.	Length.	Size.	Remarks.	Material.	Labor.	Contin- gencies.	rotal cost,	Appropriation.
§	Illinois A venue and Jefferson Street NW 1.	Lin. Pt.	Inches.	1 basin.	19 23	850.20		8 23 8 8	Construction of county roads, 1914,
1011	Sixth and K Streets NE., northeast, northwest, and southeast corners.	27.0 12.0	22	3 besins	63.50	184.38	80.90	207.87	Jefferson Street. Northeast schedule, 1914.
8 8	East Capitol Street between Second and Tenth Streets. <sup>1</sup> C Street NE between First and Second			1 besin Manhole shandoned	84	5 8 5 8	¥ ¥	8 8	Repairs to streets, 1914. Improvements and repairs, 1914. DAY
8	Streets. W Street, east of Avenue of Presidents.			1 basin abandoned; 1 basin		<b>80</b> 19	<b>8</b>	88	C Street First to Fourth. Improvements and repairs, 1914, north-
1106	Corners Seventh to Eleventh on H Street	61.0	2	basins constructed;	102.67	218.04	16.08	387.60	west schedule. Repairs to streets, 1914.
1108	NE. Thirteenth and South Carolina Avenue	0 8	2	Dasin adjusted.  1 basin reconstructed	19.80	20.38	20.50	3, 3	Improvements and repairs, 1914, south-
1107	SE. Fifteenth and W Streets NW., northwest			1 besin adjusted	3.	8	*	7.92	east schedule. Improvements and repairs, 1914, north-
88	corner. Sixth and O Streets, northwest corner Tenth and H Streets NE., northeast corner			1 basin reconstructed	17.50	<b>8</b> %	24	<b>4</b> 9	west schedule. Assessment and permit, street. Repairs to streets. 1914.
0111	Harvard Street, east of Lanler Place	8.5	27	•	30, 74	34.87	4	28.25	Quarry Road entrance to Zoo Park.
m	Northwest corner Irving Street and Adams	20.00	22	•	82 28	<u>1</u>	8.86	80.80	Repairs to suburban roads.
2111	Eighteeth and C Streets NW., northwest	3.0	16	1 besin reconstructed	16.17	41.51	2.88	60.56	Repairs to streets, 1914.
1113	Harvard Street, north of Columbia Road	88.8	22	1 gutter drop.	1,8 28	51.00	28 4 e	119.31	Quarry Road entrance to Zoo Park, Do.
9111	west corner. At corners of Fourth and Fifth on M Street	111.0	. 2	5 basins reconstructed	160.02	376. 52	8	563.37	Repairs to streets, 1914.
9111	Twenty-third and T Streets, northeast		i	1 basin reconstructed	3.41	12.4	8.	16.64	Construction of suburban roads.
1117	Seventh and I Streets SW., northeast	18.0	2	1 basin	8.8	49.87	3.80	8.	Improvements and repetrs, 1914, south-
8111	John Marshall Place and C Street.  Eighth and D Streets SW., southwest	86.0 0.0	22	2 besins reconstructed	2, 24 37 37	25.3 88	94 88	8 ¥	West schedule. Repairs to streets, 1914. Do.
821	Eight and D Streets BW., northwest	9	2	1 basin reconstructed	14.07	41.78	4	36.62	Do

211	Corners Tenth and Virginia Avenue and Tenth and B Streets.	57.0	ធ ខ្ព		5 26	191.90	41 41 6 6 84 6	280.44	Do.  Elimination of grade evosings.
222	Rear entrance Public Library Bureau of Engraving and Printing New Hampshire Avenue between L and	78.0	2	1 Desin. 2 branches replaced. 1 basin.	\$44 188	a a a a a a a a a a	작극석 8%충	138. 28.31 51.68	Public Library. Bureau of Engraving and Printing. Repairs to streets, 1914.
1127	Tuberculosis Hospital Grounds.	. 27.0	*		46.95	87.12	2	140.77	Building and grounds Tuberculosi
1128	Twelfth and C Streets SE., northeast	:	:	1 basin reconstructed	. 17.06	66.46	89 si	1.8	Repairs to streets, 1914.
821	Eighteenth Street NW., between Querry	284.7	12		161.78	521. 62	34, 17	717.65	Quarry Road entrance to Zoo Park.
1130	Eighth and M Streets SE., northwest cor-	15.0	2	1 basin reconstructed	17.18	49.87	3,36	3 \$	Repairs to streets, 1914.
1131	Quarry Road, between Adams Mill Road	265.0	2		189, 54	472.08	88.08	694.65	Quarry Road entrance to Zoo Park.
1132	Quarry Road, between Harvard and	162.0	2		82.54	266. 22	17.44	366.30	Do.
1133	G Street, crossing North Capitol Street	900	222		166. 57	88 .88	41.01	861.38	Government Printing Office.
1134	Mecomb Street between Ross Street and	\$	•	1 manhole adjusted	88	19.62	1.18	27.76	Suburban Roads.
1135	F Street NW, at Seventeenth Street.		22	1 basin.	88 88	5.55 \$ 25	88	88. 67.31	Repairs to streets, 1914. Assessment and permit, streets.
1137	From White House Fountain to Bathing Pools.	2,040.9	214		788. 73	1,603,29		2, 496. 70	Bathing Beach.
1138	No work under this number. Eighteenth and G Streets NW., northwest			2 basins reconstructed	30.46	72.75	5, 16	108.37	Repairs to streets, 1914.
1140				do.	21.16	88	4 88	96.07	Do.
1141	Wisconsin and mean country. Wisconsin and Sirveius between Thirty-fourth		Ī	• manholes raised	19. 40	38.62	8 6	60.92	Georgetown schedule, 1914.
2711	Thirteenth and V Streets NW., northwest	38.0	21	1 basin	28, 48	90, 13	5. 5.	124, 63	Repairs to streets, 1914.
1168	ರ	20.0	22	I basin reconstructed	88	128.73	8	181.24	Do
7	reets NW.		<b>Z</b> 2		40.30	121.55	25.00	179.30	Do
3	Delaware Avenue and H Street SW.		2	1 basin.	27.63	55. 65.	88 %	81.14	De.
22	Delaware Avenue SW., at H Street No work under this number	15.0	2	1 basin reconstructed	8 8	38, 15	20.5	68.77	ğ
	1 Continuation of 1913 work,		•	288.92 of this for repaying.	sving.			\$104.77 of	\$104.77 of this for repaying

TABLE No. 8.—Sewer construction from miscellaneous appropriations, fiscal year ended June 30, 1914—Continued.

		Sewer laid.	lafd.			Cost of—			
No.	. Location.	Length. Bise.	Sise.	Remarks.	Material.	Material, Labor. Contingencies.	Contin- gencies.	- <del>1</del> 200	Appropriation.
1148	Eighteenth and R Streets NW.; Eighteenth and Riers Streets: Eighteenth	Lin. Ft. 38. 6	Inches.	Lin. Fr. Inches. 4 besins reconstructed		\$77. 13 \$151. ¢2		\$289.97	\$11. 43 \$239. 97 Repairs to streets, 1914.
1146	and S Streets N.W.	2,0		12 2 bestns	25.56	87.80	4.17		87.63 Quarry Road entrance to Zoo Park.
1150	Southeast corner Virginia Avenue and Eleventh Street.	88.0		12 1 basin reconstructed	<b>8</b>	36.00	2.07		62.46 Assessment and permit, streets.
	Total	4,642.5		4,642.5	2,768.06	6,743.07	363. 31 9, 978. 13	9,978.13	

TABLE No. 9.—Inspectors and other employees of the sewer division, temporarily employed, and the appropriations from which paid, fiscal year ended June 30, 1914.

Appropriations.	Inspectors.	Overseers.	Other em- ployees.	Total.
Construction, sewerage system:	-	<del> </del>		
Main and pipe sewers	. \$1,640.38	\$697.50	\$1,877.06	84, 214, 94
Suburban sewers	4,045,53	490, 00	2,684,81	7, 230, 34 7, 498, 28
Assessment and permit work		186,00	2,684,81 4,596,07	7, 408, 28
Construction, sewage-disposal system:			,,,,,,,,,	.,
Anacostia main interceptor	. 421.54	1	496, 96	918, 50
Rock Creek main interceptor	. 1,034,81		496. 96 1, 070. 68	2, 105, 40
Maintenance:				-,
Cleaning and repairing	. 605.12	245.50	1,085.00	1,985,63
Cleaning and repairing			862.00	1,985.03 862.00
Total	. 10, 458, 54	1,619.00	12,672,58	24, 750, 12

This table includes the cost of 2 employees of the record room, 1 employee of the disbursing office carried on rolls for 4 months, also 4 employees of the purchasing office carried on the rolls for 5 months.

TABLE No. 10.—Unit cost for construction of various sizes of pipe seners, and for stormwater receiving basins, showing the cost of labor and cost of material, and the total cost, fiscal year 1914.

Sise of sewer.	Unit cos	t per foot.	Total
Diag Of Bower.	Labor.	Material.	cost per foot.
8-inch diameter. 10-inch diameter. 13-inch diameter. 14-inch diameter. 15-inch diameter. 21-inch diameter. 21-inch diameter. 21-inch diameter. 8-inch diameter. 8-inch diameter.	\$0. 780 1. 076 1. 328 1. 435 1. 564 1. 694 2. 107 57. 738	\$0, 260 . 453 . 513 . 667 . 890 1, 343 1, 413 28, 234	\$1. 000 1. 520 1. 526 2. 122 2. 454 3. 087 3. 520 85. 973

TABLE No. 11.—Average cost of pipe sewers for 15 years.

<b>V</b>		nch neter.		inch neter.		inch neter.		inch neter.		inch neter.		inch seter.	34-i diam	noh Leter.
Year.	La- bor.	Mate-	La- bor.	Mate- rial.	La- bor.	Mate- rial.	Le- bor.	Mate- rial.	Le- bor.	Mate- rial.	La- bor.	Mate- rial.	La- bor.	Mate- rial.
1900	\$0. 80 . 78 . 83 . 80 . 98 . 87 1. 42 1. 34 1. 34 1. 00 1. 06 1. 02 . 78	\$0. 32 .30 .32 .36 .36 .38 .43 .42 .36 .27 .27 .25 .26	90. 88 . 86 . 97 1. 03 . 96 1. 19 1. 43 1. 26 1. 16 1. 16 1. 08 1. 07 1. 08	\$0.39 .41 .41 .53 .55 .55 .47 .48 .50 .36 .35 .32 .33 .29 .45	\$1. 04 . 92 1. 04 1. 09 1. 17 1. 19 1. 26 1. 30 1. 44 1. 46 1. 12 1. 17 1. 20 1. 35 1. 32	80. 44 . 46 . 46 . 54 . 60 . 54 . 56 . 61 . 46 . 43 . 40 . 39 . 38 . 51	\$1. 22 1. 19 1. 46 1. 32 1. 41 1. 41 1. 46 1. 69 1. 59 1. 19 1. 36 1. 46 1. 53 1. 44	\$0. 57 .64 .62 .73 .81 .77 .67 .70 .75 .56 .52 .52 .58 .69	\$1. 34 1. 88 1. 74 1. 52 1. 61 1. 45 1. 53 1. 82 1. 91 1. 58 1. 64 1. 63 1. 74 1. 56	\$0.67 .73 .78 .81 .91 .89 .85 .90 .62 .66 .67 .75	\$1.51 1.50 1.91 1.57 1.94 1.92 1.88 2.09 1.74 1.67 1.52 1.70 1.93 1.00	90. 76 . 89 . 96 1. 06 1. 24 1. 01 . 98 1. 14 1. 07 . 85 . 88 1. 08 1. 34	\$1.98 2.20 2.43 1.74 2.24 1.87 2.78 3.66 1.91 1.72 1.76 2.20 2.11	\$1.00 1.18 1.38 1.32 1.43 1.24 1.26 1.18 1.10 1.18 1.14 1.14 1.26 1.28

TABLE No. 12.—Contract prices for construction materials, for 15 years.

[Coment per barrel; sand and gravel per cubic yard; terra-cotta sewer pipe per linear foot.]

_	Ce-		Peb-	ĺ		Terr	ra-cotta j	pipe.		
Year.	ment.	Sand.	bles.	8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	34-Inch.
		Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Crats.
1900	1.75	0.70	0.90	0.11	0.15	0.17	0.25	0.84	0.58	0.66
1901	1.85	. 68	.93	.12	. 165	. 185	.265	.37	. 575	.72
1902	1.82	. 65	.88	.115	.17	.205	.275	. 39	. 59	.77
1903	1.96	. 55	.87	.12	. 185	. 235	.33	. 42	. 62	.80
1904	1.75	. 85	. 85	.12	. 228	. 297	. 401	. 5049	. 7425	.965
1905	1.13	. 81	. 85	.14	.20 ~	.29	.40	.50	. 74	.96
1906	1.35	. 85	1.05	.122	. 1647	. 2236	. 2997	. 3672	. 5454	.726
1907	1.55	.74	.97	. 155	. 195	. 261	. 353	. 443	. 5454	.848
1908	1.52	. 84	1.04	. 155	. 225	. 30	.405	. 51	. 75	.975
1909	1.20	. 55	. 75	. 155	. 1707	. 239	. 3233	. 4066	. 5975	.7778
1910	. 975	. 54	. 65	. 125	. 15	.20	.27	. 3825	. 5625	. 73125
1911	. 99	. 395	. 485	. 115	. 175	.22	.30	. 42	. 55	.715
1912	. 98	. 345	. 435	. 121	.176	. 22	.31	.40	. 59	.715
1013	. 94	. 345	. 435	. 105	. 15	. 18	. 351	. 494	. 78	.845
1914	1.11	.54	.69	.11	. 256	.25	. 432	.608	. 96	1.04

TABLE No. 13. - Maintenance sewerage system-work for 10 years.

	1914	1913	1912	1911	1910
Main sewers cleaned	1,113	4,525	4,071	300	1,19
Pipe sewers cleaned	145, 767	123,545	122,838	161,190	149,60
Pipe sewers flushed	6, 339, 122	6,705,367	5, 906, 405	5, 685, 423	3,717,32
Manholes flushed	17,208	18,594	16, 733	15,994	11,90
Sumps, regs, gates, cl-insp	4, 222	8,949	2,245	530	50
Basins Rushed	18,586	18, 416	5, 293	11,950	18,88
Basins cleaned	45, 502	40, 244	38, 760	60,379	57,75
Sludge removed:	4,079	9 702	0.470	3,538	5,065
Pipe sewers	160, 660	3, 723 168, 696	2,479 147,741	3,036 166,428	190,30
Sediment chamberdo	62, 856	66, 744	53, 140	58, 131	88, 677
Screenspounds	798, 666	869,640	1.084,128	833,617	890, 290
Main sewers inspectedmiles	134	130.90	126.24	122.78	114
Pipe sewers inspected		1,270	491.47	469.42	448.78
Basins repaired		117	141	156	36
	1900	1906	1907		
		1905	1907	1906	1906
Main sawers cleaned feet					
Main sewers cleaned	11,624	13,723	24,724	10,360	41,967
Pipe sewers cleaned	11,694 153,145	13, 723 84, 914	24,724 86,101	10,360 111,879	41,967 86,692
Pipe sewers cleaned	11,624 153,145 1,873,142 5,295	13,723	24,724	10,360 111,879 1,800,200	41,967
Pipe sewers cleaned	11,624 153,145 1,873,142 5,295	13,723 84,914 1,795,200	24,724 86,101 1,846,300	10,360 111,879	41,967 86,602 1,650,500
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp. Basins flushed	11,624 153,145 1,873,142 5,295 11 2,829	13,723 84,914 1,795,200 6,093 8	24,724 86,101 1,846,300 2,851	10,360 111,879 1,800,200 4,822 8	41,967 86,602 1,650,500 4,251
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp	11,624 153,145 1,873,142 5,295 11 2,829	13,723 84,914 1,795,200 6,093	24,724 86,101 1,846,300 2,851	10,360 111,879 1,800,200	41,967 86,602 1,650,500
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp. Basins flushed Basins cleaned Bludge removed:	11,634 153,145 1,873,142 5,295 11 2,839 52,634	13, 723 84, 914 1, 795, 200 6, 093 8 40, 866	24,724 86,101 1,846,300 2,851 . 8	10,360 111,879 1,800,200 4,822 8	41,967 86,692 1,650,500 4,251 8
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp Basins flushed Basins cleaned Bludge removed: Pipe sewers cut.	11,694 153,145 1,873,142 5,295 11 2,839 52,634 3,334	13,723 84,914 1,795,200 6,093 8 40,866 3,256	24,724 86,101 1,846,300 2,351 8 45,809	10,360 111,879 1,800,200 4,822 8 56,884 3,325	41,967 86,992 1,650,500 4,251 8 48,723
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp. Basins flushed Basins cleaned Bludge removed: Pipe sewers	11,634 153,145 1,873,142 5,295 11 2,839 52,634 3,334 188,460	13, 723 84, 914 1, 795, 200 6, 093 8 40, 866 3, 256 277, 319	24,724 86,101 1,846,300 2,851 . 8	10,360 111,879 1,800,200 4,822 8 56,884 3,325 193,077	41,967 86,602 1,650,500 4,251 8 48,723 3,267 258,545
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp. Basins flushed Basins cleaned Sludge removed: Pipe sewers	11,624 153,145 1,873,142 5,295 11 2,839 52,634 3,334 188,460 61,005	13,723 84,914 1,795,200 6,093 8 40,866 3,256	24,724 86,101 1,846,300 2,351 8 45,809	10,360 111,879 1,800,200 4,822 8 56,884 3,325	41,967 86,602 1,650,500 4,251 8 48,723 3,267 258,545
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp. Basins flushed Basins cleaned Biudge removed: Pipe sewers	11, 694 153, 145 1, 873, 142 5, 295 51 2, 829 52, 634 3, 334 188, 460 61, 695 16, 394	13, 723 84, 914 1, 795, 200 6, 093 8 40, 866 3, 256 277, 319	24,724 86,101 1,846,300 2,351 8 45,809	10,360 111,879 1,800,200 4,822 8 56,884 3,325 193,077	41,967 86,602 1,650,500 4,251 8 48,723 3,267 258,545
Pipe sewers cleaned Pipe sewers flushed Manholes flushed Sumps, regs, gates, cl-insp Basins flushed Basins cleaned Bludge removed: Pipe sewers cut.	11,634 153,145 1,873,142 5,295 11 2,829 52,634 3,334 188,460 61,095 16,394	13, 723 84, 914 1, 795, 200 6, 093 8 40, 866 3, 256 277, 319	24,724 86,101 1,846,300 2,351 8 45,809	10,360 111,879 1,800,200 4,822 8 56,884 3,325 193,077	41,967 86,602 1,650,500 4,251 8 48,723 3,267 258,545

TABLE No. 14.—Summary of sewerage system for 25 years.

	To	otal leng	th.	Total	l cost.		et mainte- operation.
Piscal year.	Trunk sewers.	Pipe sewers.	All sewers.	Sewerage system. 1	Sewage-dis- posal system.	Sewerage system.	Sewage- disposal system. <sup>2</sup>
90	64. 89 67. 16 68. 37 71. 32 74. 48 77. 65 81. 36 88. 30 90. 39 96. 31 99. 12 103. 21 109. 20 112. 20 117. 24 119. 20	Miles. 204. 13 216. 79 2277. 60 238. 45 250. 13 250. 20 270. 28 284. 06 296. 91 307. 36 317. 20 327. 85 338. 13 385. 70 385. 26 424. 07 24 448. 78 469. 43 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4692. 48 4	Miles. 266. 18 281. 68 294. 76 306. 82 321. 45 334. 68 347. 88 366. 42 382. 93 366. 42 382. 93 366. 42 480. 405. 50 445. 55 501. 44 80. 45 501. 44 80. 45 601. 567. 98 692. 20 618. 53	7, 623, 721, 62 7, 842, 721, 62 8, 907, 721, 62 8, 298, 931, 62 8, 476, 431, 62 8, 661, 731, 62 8, 901, 731, 62 9, 183, 731, 62 9, 309, 331, 62 9, 515, 731, 62	\$3,714,823.00 3,952,768.65 4,031,883.0.70 4,146,228.01 4,228.55.94	42, 000. 00 43, 000. 00 45, 000. 00 45, 000. 00 45, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00 50, 000. 00	* \$37, 295. 0 * 38, 625. 0 58, 000. 0 58, 000. 0 58, 000. 0

Table No. 15.—Rights of way acquired during the fiscal year ending June 30, 1914.

For separate system sewer for service of St. Francis de Sales Church (east side interceptor in line of Evarts Street NE. extended, westward from Queens Chapel Road; through parcel 154/10.1

For separate system outlet sewer (Ashby Street outlet); through lot 6 of square

1418.2 For separate system outlet sewer (Ashby Street outlet); through lot 39 of square

1418.2 For separate system service sewer (Kenilworth trunk) in line of Kenilworth Avenue NE. extended, between Polk Street extended and Ord Street; through lot 12 of square

For separate system outlet service sewer (Falls Branch trunk) in line of Forty-fourth Street NW. extended, between River Road and Fessenden Street; through parcel 25/28.3

For separate system outlet service sewer (Falls Branch trunk) in line of Fortyfourth Street NW. extended, between Ellicott Street extended and Garrison Street extended; through parcel 25/30.3

For separate system outlet service sewer (Falls Branch trunk) in line of Forty-fourth Street NW. extended, between Fessenden Street and Garrison Street extended; through parcel 25/8.

For separate system outlet service sewer (Falls Branch trunk) in line of Fortyfourth Street NW. extended, between Garrison Street extended and Harrison Street extended; through parcel 25/5.3

For separate system outlet service sewer (Falls Branch trunk) in line of Forty-fourth Street NW. extended, between Harrison Street extended and Jenifer Street extended; through parcel 25/4.3

For separate system outlet service sewer (Falls Branch trunk) in line of Forty-fourth Street NW. extended, between Harrison Street extended and Jenifer Street extended; through parcel 26/1.2

Exclusive of sewage-disposal system.
 The sewage-disposal system went into operation July 1, 1908.
 Handling a part of the sewage only during these years.

<sup>1</sup> Permit not recorded.

<sup>&</sup>lt;sup>2</sup> Voluntary dedication.

For separate system outlet service sewer (Falls Branch trunk) in line of Fortyfourth Street NW. extended, between Harrison Street extended and Western Avenue extended and thence to Wisconsin Avenue; through parcel 26/2.1

For separate system service sewer (Falls Branch trunk) between Forty-second Place

and Forty-second Street; through lots 2 and 1 of square 1664.2

Good Hope Run Trunk Outlet.—For combined system between established bulkhead line, Anacostia River improvement, and line of condemnation for highway and

park purposes, Anacostia River improvement; through parcel 224/5. Naylor Road Trunk Outlet.—For combined system between the established bulkhead line, Anacostia River improvement, and line of condemnation for highway and

park purposes, Anacostia River improvement; through parcel 217/1.1

For combined system Macomb Street trunk (Arizona Avenue trunk) in line of Macomb Street NW. extended, and north of Macomb Street extended, between

Massachusetts Avenue and Old Massachusetts Avenue; through parcel 32/3. For separate system outlet sewer (Kenilworth trunk) between Douglas Avenue NE. and line of Forty-third Place, produced; also in line of Forty-third Place, produced, between Douglas Avenue and Pine Street; through lot 70 of square 5115.

For separate system service sewer (Arizona Avenue trunk) in line of Forty-fourth Street NW. extended, between Conduit Road, produced, and P Street; through parcel 27/51. Washington Railway & Electric Co., owner of record.

For separate system service sewer (Arizona Avenue trunk) in line of Forty-fourth

Street NW. extended, between Conduit Road, produced, and P Street; through parcel

27/51. Foxall Heights Co., owner by claim.

For combined system service sewer (Piney Branch trunk) in line of Fifteenth Street NW. extended, between Allison Street and Buchanan Street; through parcel 84/76.2 For separate system outlet sewer (Kenilworth trunk) between right of way of Baltimore & Ohio Railroad and line of Forty-eighth Street NE; also for separate system service sewer (Kenilworth trunk) in line of Nash Street NE. extended, between Forty-eighth Street and Forty-eighth Place extended, and in line of Forty-eighth Place extended, between Nash Street extended and Meade Street; through parcel 188/2.1

For separate system outlet sewer (Kenilworth trunk) in line of Forty-ninth Street NE. extended, between Nash Street extended and Quarles Street extended; also for eparate system service sewer (Kenilworth trunk) in line of Quarles Street NE. exended, between Minnesota Avenue and Eastern Avenue; through parcel 184/1.1

TABLE No. 16.—Conduits laid during fiscal year ended June 30, 1914.

Number of ducts.	Potomac Electric Power Co.		Chesapeake & Poto- mac Telephone Co.				Western Tologra	n Union aph Co.	То	tal.
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.		
1	Feet. 4,901.8 2,745.7 384,728.4 2,676.2	Fest. 4, 901. 8 5, 491. 4 138, 913. 6 21, 409. 6	Feet. 3,361.1 17,763.2 177.0 3,690.0	Feet. 3, 361. 1 35, 526. 4 531. 0 12, 360. 0	Feet. = 20.0 607.0	Feet. = 20.0 1,214.0	Feet. 8, 282. 9 21, 115. 9 177. 0 37, 818. 4 2, 676. 2	Fact. 8, 262.9 42, 251.8 531.0 151, 273.6 21, 400.6		
Total	45,062.1	170, 716. 4	24,391.3	51,778.5	627. 0	1,284.0	70,070.4	223, 738.9		

Washington & Old Dominion Ry. Co. conduit.
 Includes 34 feet of Washington Ry. & Electric Co. 4-duct conduit.

This table does not include 486.8 feet of 4-duct and 1,385.9 feet of 8-duct conduit, 1,385.9 feet of 4-inch steam and 3-inch return pipe, and 457 feet of 7 by 8 foot subway laid by United States Government.

<sup>1</sup> Consideration paid.

<sup>&</sup>lt;sup>2</sup>Voluntary dedication.

<sup>&</sup>lt;sup>3</sup> Permit not recorded,

TABLE No. 17.—Statement of electric conduits laid by public-service corporations each year from 1901 to 1914, inclusive.

	Washingt Electr		Potomac Electric Power Co.		Capitol C	Traction o.
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
prior to Mar. 27, 1900	Feet. 75,743	Feet. 569,332 704	Feet. 343,885 16,387	Fest. 1,814,966 65,952	Feet. 48, 218	Feet. 399, 851
· · · · · · · · · · · · · · · · · · ·			8, 098 24, 655	89, 958 105, 492		
	4,670	87,360	15, 635 13, 798	65, 412 56, 892		
••••••		•••••	50,057 38,053 39,705	287,311 252,741 154,940	5, 285	29,652
•••••••••••	859	6, 643 1, 806	58, 607 46, 097	235, 225 159, 320	23 11,769 263	92 90,660 1,788
	42	168	56,028 63,842 89,884	240, 518 336, 358 146, 121	914 9,416 2,300	6,321 58,542 18,400
••••••••••••		136	45, 018	170, 580		
V	Champan					
	mac Tele	re & Poto- phone Co.		n Union aph Co.	Postal T Cabl	elegraph • Co.
	mac Tele	Duct.			Postal T Cable Conduit.	elegraph Co.  Duct.
	Conduit.	phone Co.	Telegra	aph Co.	Cabl	Co.
or to Mar. 27, 1900	Cenduit.  Feet. 79,920 876	Duct.	Conduit.	Duct.	Cable Conduit.	Duct.
	Conduit.  Feet. 79,920 876	Duct.  Feet. 698, 920 4, 690	Conduit.	Duct.	Cable Conduit.  Feet.	Duct.
	Peet. 79, 920 876 123, 804 35, 905 39, 493 80, 433	Prest. 698, 920 4, 690 640, 448 138, 649 147, 092 278, 693	Conduit.  Feet.  10,635	Duct. Feet. 44,995	Cable Conduit.  Feet.	Duct.
	Peet. 79, 920 876 123, 904 33, 905 39, 409 39, 433 75, 110 58, 005	Pret. 698, 920 4, 690 147, 002 278, 603 281, 405 228, 725	Telegri Conduit. Feet. 10, 635 383 11, 463	Peet.  44,995 1,710 51,775	Cable Conduit. Feet.	Duct.
	Peet. 79, 920 876 123, 904 33, 905 39, 409 80, 433 75, 110 58, 005 11, 769 56, 582	Peet. 698, 920 4, 690 147, 002 278, 403 228, 725 90, 660 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850 140, 850	Conduit.  Feet.  10, 635 383	Peet.  44,995 1,710	Cable Conduit.  Feet.	Duct.  Feet.
	Peet. 79, 920 876 123, 904 33, 905 39, 409 80, 433 75, 110 58, 005 51, 769 56, 582 44, 823 19, 966	Prest. 698, 920 4, 690 147, 092 278, 693 281, 405 298, 725 90, 660	Telegra Conduit. Feet. 10, 635 383 311, 463 2, 322 329	Peet.  44,995 1,710 51,775 7,515	Cable Conduit. Feet.	Duct.

<sup>&</sup>lt;sup>1</sup> Figures on this line are for period from Mar. 27, 1900, to June 30, 1901.

TABLE No. 18.—Summary of conduits laid from Mar. 27, 1900, to June 30, 1914.

					<del></del>			<del></del>
Number of ducts.	Washington Ry. & Electric Co.			c Electric ver Co.	Capital C	Traction o.	Chesapeak mac Tele	e & Poto- phone Co.
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
1	Feet.	Feet.	Feet. 68,923	Feet. 68, 923	Feet.	Feet.	Feet. 52,646	Feet. 52, 646
2 3	13	26	143, 730 236	287, 460 708	15, 742	31, 484	267, 976 5, 832	535, 952 17, 496
4	33,398	133, 592	435, 586	1,742,344	22,681	90, 724	175,005	700,020
6	5, 117	30,702	46,074	276, 444	8, 174 29	49, 044 203	95,347 82	572,082 574
89	19,086	152,688	89,618 7,325	717,744 65,925	15, 214	121,712	52,009 114	416, 072 1, 026
10 12	8, 275 11, 458	82,750 137,496	121 49,967 374	1, 210 599, 604 4, 862	32 908	320 10, 896	22,384 11,336 212	223, 640 186, 032 2, 756
14	1,880	26, 320	1, 224 68	17, 136 1, 020	4, 257	59, 598	3,831	56, 631
16			4,971	79, 536	401	6, 416	8,037 636	128, 584 10, 812
1820	2, 214	39, 852	562	11,240	830	16, 600	4, 149 1, 407	74, 682 28, 140

TABLE No. 18.—Summary of conduits laid from Mar. 27, 1900, to June 30, 1914—Continued.

Number of ducts.	Washingt Elect	on Ry. & ric Co	Potomi Pow	nc El rer C	lectric lo.	Cı	pital C	Tracti o.	010	Chesapes mac Tele	ke & Pote- phone Co.
Manage of Grown	Conduit.	Duct.	Conduit	1	Duot.	Con	duit.	Duc	rt.	Conduit.	Duet.
22	Feet. 134	Feet. 2,948	Feet. 3, 176		Feet. 76, 224	7	est. 9, 109	Fee 200,	398	Feet. 823 2,270 304	Foot. 18,186 54,486 7,686
26	87	2,436	2, 174 53 77		60, 872 1, 590 2, 464 138, 744		280	7,	280	313 485	9, 200 15, 820
36 38 40	193	7,334	3,854		• • • • • • • •		•••••• •••••		••••	26 1,589	63,660
56 58 64		••••••	424 7 106		18, 656 406 6, 784		•••••		••••	749 176	41,96 11,26
70 72 82		•••••••			••••••		•••••		• • • •	53 118 35	3,7k 8,49 2,87
Total	81,855	616, 144	858, 650	4,	179, 896	7	7,655	594,	<b>5</b> 75	707, 925	3, 196,021
Number of du	ıcts.	Western	Union To aph Co.	:lo-	Pos	tal T Cabl	'elegra e Co.	ph		Tota	L.
		Conduit	. Duc	t.	Condu	dt,	Dt	ect.	α	onduit.	Duct.
1	•••••	2,51	Fee:	41	Feet 15,	297 045	<b>F</b>	eet. 15, 297 2, 090		Feet. 136, 907 431, 024	Feet. 136, 907 862, 04 39, 00
3 4 5	•••••••	6,94 7,29 4,17 4,22	15   29, 77   20	036 820 180 885 392	l	001 903	is	6, 004 01, 418		136, 907 431, 024 13, 008 707, 966 4, 177 175, 847	39,09 2,831,86 20,88 1,066,08
7 8 9	••••••	18	•	830	l	140		9, 120		109 177, 067 7, 439 30, 975	777 1, 417, <b>23</b> 6 65, 925 309, 780
12		30	10 4,	017		••••		•••••		896 11, 192	884,026 11,635
15 16 17 18.	••••••		4	660		••••		•••••		1, 112 13, 409 636 6, 363	1, 690 214, 536 10, 812 114, 834
20. 22. 24	••••••	\				• • • •		••••		2,799 10,066 5,446 304	10, 812 114, 834 55, 960 221, 453 130, 704 7, 600 7, 280 63, 308
25	••••••			• • • • • • • • • • • • • • • • • • •		• • • •		•••••		280 2, 261 366	7,600 7,280 63,308 10,980
32	••••••			••••		••••				3,880 193 1,589	17,984 129,000 7,334
44	••••••••••••••••••••••••••••••••••••••			• • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	• • • •		••••		749 749	63, 860 18, 665 41, 944 405
64	••••••			••••				••••		282 53 118	18, 948 3, 710 8, 406 2, 879
Total	······	25, 73	_		68,	386	26	3,929	1,	821, 209	8, 966, 536

Norz.—This table does not include 8,397 feet of United States Government conduit, 7,888 feet of United States Government pipe lines, 216 feet of Washington & Old Dominion Ry. Co. conduit, 879.5 feet of Washington Market Co. pipe lines, 588.6 feet of private conduit, and 487 feet of 7 by 8 foot subway laid by United States Government.

TABLE No. 19.—Gas mains laid during fiscal year ended June 30, 1914.

Size of mains.	Washing- ton Gas Light Co.	Georgetown Gas Light Co.	Total.
inches	Linear feet. 50.0 2, 787.0 18, 601.7 18, 346.7 4, 481.0 2, 824.8 1, 383.3	Linear fest. 243.0 2,954.9 2,641.0	Linear fest. 293.0 2, 787.0 21, 556.6 20, 987.7 4, 481.0 2, 824.8 1, 383.8
Total	48, 474. 5	5, 838. 9	54, 313.

## TABLE No. 20.—Statement gas mains laid by gas companies from 1907 to 1914, inclusive.

Fiscal year.	Washing- ton Gas Light Co.	Georgetown Gas Light Co.	Total.
1907	61, 642. 0 83, 692. 0 69, 237. 0 48, 192. 1 88, 583. 0 61, 234. 1	Linear feet. 8, 450. 0 19, 777. 0 25, 498. 0 2, 202. 0 10, 982. 8 50, 177. 6 11, 687. 7 5, 838. 9	Linear feet. 45, 055.0 81, 419.0 109, 190.0 71, 439.0 59, 174.9 128, 760.6 72, 921.8 54, 313.4

# TABLE No. 21.—Summary of gas mains laid to June 30, 1914, beginning July 1, 1906.

Size of mains.	Washing- tor, Gas Light Co.	George- town Gas Light Co.	Total.
1½ inches. 2 inches. 3 inches. 4 inches. 6 inches. 5 inches. 10 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches. 20 inches.	79, 528 8, 269 9, 571	1,311 26,678 51,414 14,268 4,107 33,309	Linear feet. 1, 647 6, 939 4, 593 189, 906 264, 727 23, 197 4, 107 112, 832 8, 269 9, 571
Total	493,890	121,087	624,977

#### REPORT OF INSPECTOR OF BUILDINGS.

WASHINGTON, August 13, 1914.

Sir: I submit herewith the annual report covering the transactions of the building division during the fiscal year ended June 30, 1914. No operations of the Federal Government were reported during the year.

# Statements of permits issued from July 1, 1915, to June 30, 1914.

	Number.	Value.		Number.	Value.
			Butch Continued		
rick:			Brick-Continued.		
Repairs		\$1, 180, 232	Hell	1	\$25,00
Dwellings	898	2,681,450	Dwelling and office	.1	75,00
Apartments	84	1, 472, 480	Tile, dwellings	13	133,00
Hotels	2	240,000	Concrete, garages	Ð	2,60
Stores and dwellings	27	130, 411	Metal:		
Stores	47	662, 111	Sheds	74	9,45
Office buildings	5	408,500	Churches	2	1.00
Stables	14	12, 375	Garages	73	8,83
Garages.	120	114,601	Frame:		.,
Warehouses	20	164,730	Sheds	527	22,0
Workshops		3,075	Reneire	558	<b>30</b> .53
Sheds		3,550	Repairs	250	763.96
Chibhouse		31, 126	Stores	200	
		43,500	Churches		5.36
Dairies			Churches	•	
Theaters		114,728			4,60
Bakery		9,000		17	2,6
Laboratory	1	2,500	Stables	4	40
Power house	.] 1	1,800	Store and dwelling		3,60
Laundry	. i	10,000	Boathouse	1	1,00
Factories	. 2	5,300	Pavilion	1	60
Orphanage		54,000	Open-air parkElevators	1	1.09
Churches		158,000	Rievatora	92	164.00
"Home"		75,000	Motors	201	88.46
Stores and offices	1 3	18,000	Bollera	12	2.70
Warehouse and private		20,000	Gas engines		2.40
		3,000	Cass engines	•	-,
garage		1,850	Total	4.500	A 510 A
Carriage houses	] 2		A	4,531	9, 518,05
Greenhouses	7	22,500	Awnings	156	11,70
Ice houses		22, 144	Fire escapes		6,00
Sanatorium		20,000	Signs	795	7,600
Hospital	1	250,750			<del></del>
Schools		165,000	Grand total	5,515	9,544,30
Chapel	1	3, 150		1	

## Comparative statement for the years 1913 and 1914.

	New buildings.	Repairs, etc.	Dwell- ings.	Apart- ments.	Business buildings.
1914	1,496 1,850	4, 019 4, 246	1,161 1,540	34 14	30L 396
Total	1 354	1 227	1 379	20	5

#### 1 Decrease

Valuation of building operations, including awnings, fire escapes, and signs: 1914	89, 544, 302 10, 243, 748
Decrease.  Permits issued, including buildings, repairs, awnings, signs, motors, elevators, etc.: 1914.	609,446
1914	5,644 6, <b>29</b> 4
Decrease	650
Projections beyond the building line, permits for	1,861

The following summary will show the distribution of improvements in the different sections of the District, and the values of same:

	Buildings.	Repairs, etc.1
Northeast Southeast Southeast Southeast County County Southwest County County Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwest Southwes	357, 150 2, 777, 379	\$100,538 56,383 1,077,116 37,904 415,561
Total	7,830,563	1,687,489

<sup>&</sup>lt;sup>1</sup> Does not include awnings, fire escapes, or signs, cost of which is estimated.

Total for buildings, repairs, etc., \$9,544,302.



## Estimated number of buildings in the District of Columbia.

	Brick.	Frame.
1953. 1954.	59,790 1,214	26, 841 248
Total	61,004	26,089
Received during 1914.	1,230 16	206 18
Total	1,214	248

As will be noted from the above there was a general decrease in building operations in this city, as in other cities of the Union, during the past year. The valuation of the operations being some \$7,00,000 less than the year previous and some \$7,000,000 less

than the year previous to that.

The fees collected by the office for permits were also less, amounting only to \$25,005.61, whereas the expenses of the office (\$34,594.02) were about the same as last year, and therefore the receipts did not meet the expenditures by \$9,588.41. In anticipation of this loss of revenue there was promulgated by the commissioners an amendment to the building regulations effective April 1, 1914, enlarging the scope of fees charged by this office, so as to charge for inspection of elevators, theaters, and other places of public amusement, as well as buildings falling within the purview of the fire-escape law, all of which it is expected will add about \$5,000 annually to the income of this division.

In this connection it is to be noted that this office has for years been charged with the inspection of hotels, public halls, moving-picture establishments, theaters, etc., for which annual licenses are issued (and in this year collections made of \$16.618) by the assessor, and for which this office has received no reimbursement. It would seem only

fair that some portion of this amount should be credited to this office.

During the year certain amendments were made to the building regulations, notably the one just referred to, with respect to additional fees for permits. Also one providing for the better protection of workingmen in skeleton steel buildings, and one to prohibit

the construction of long, narrow tenement houses with insufficient light and air.

The city of Washington was on July 30, 1913, visited by an extraordinarily violent hurricane. Generally the buildings withstood the storm without material damage, but one serious collapse did occur, that to the building on the northeast corner of Seventh and L Streets NW., which blew down, killing two persons and injuring several others.

Herewith are transmitted the reports of the civil engineers and computers, the fireescape inspector, the elevator inspectors, and the several assistant building inspectors,

which show the details of the work covered by the office.

Excellent results have been accomplished during the year in the equipment of buildings, as required by the fire-escape law. The records show a greater number of

compliances with this law than in any previous year.

Attention has been invited in the estimates forwarded to the commissioners for the year 1916 to the recommendations for increases in salaries in this office, for adequate transportation, and for appropriation to cover cost of viewing certain tests of fireproof materials.

While the records of the year do not indicate that the valuation of building operations were as great as in the last years, the inspection work has been more scattered and the force has had all it could do to properly supervise and inspect this work. These conscientious employees, in fairness to them and to the municipality, should be shown appreciation and given encouragement by additional remuneration. My acknowledgments are due them for the work accomplished during the past year.

> MORRIS HACKER, Inspector of Buildings.

Capt. ROGER G. POWELL Captain, Corps of Engineers, United States Army, Assistant to Engineer Commissioner.

#### COMPUTERS' REPORT.

Washington, D. C., September 14, 1914.

Sir: We submit herewith our report for the fiscal year ended June 30, 1914.

There has been a falling off in the building of small dwellings, as compared with previous years. The erection of the more pretentious dwellings has been normal, or practically so.

The most noteworthy feature as observed by this branch of the division—and a most desirable one—is the increase in fireproof construction. This obtains even in the case of three and four story apartment houses, 90 per cent. of which are fireproof.

And this is true even of those apartments under 55 feet in height.

During the year, too, many high-class fire-resisting office buildings, warehouses, etc., designed in many cases by some of the leading architects and engineers of the country, have been submitted to and passed upon by us. The intelligent consideration of the plans of such structures requires that the District engineers and computers be constantly studying the best authors and most advanced practical exponents of such construction that they may keep abreast of the most enlightened and up-to-date methods employed.

The outlook is particularly promising for an increasing proportion of fireproof construction in the District, and a gradual reduction in combustible buildings now standing, with special reference to buildings of a public nature.

T. L. COSTIGAN, F. W. HART,

Civil Engineers and Computers, District of Columbia.

The Inspector of Buildings.

### REPORT OF INSPECTOR OF FIRE ESCAPES.

WASHINGTON, August 19, 1914. Sir: I have the honor to respectfully submit my annual report for the fiscal year

ended June 30, 1914, as follows: Visits to theaters..... •••••• 119 Visite to hotels... Notices served..... Compliance notices mailed..... Fire escapes erected..... Active cases in files.....

Very respectfully,

JAMES P. PARRY. Inspector of Fire Escapes.

The Inspector of Buildings.

## REPORT OF INSPECTORS OF ELEVATORS.

WASHINGTON, July 1, 1914.

Sir: I have the honor to herewith submit my annual report for the fiscal year ended June 30, 1914:

Passenger elevators installed	22
Freight elevators installed	9
Hand-power elevators installed	14
Alterations to elevators	
Miscellaneous inspections	
Elevators examined	
Condemnations on elevators.	
Elevators inspected for United States Government	62
Condemnations on elevators for United States Government	9
Elevators inspected for District of Columbia	36

WILLIAM I. EVANS. Inspector of Elevators.

The Inspector of Buildings.

WASHINGTON, July 1, 1914.

Siz: I have the honor to submit my report for the fiscal year ending June 30, 1914, covering the duties assigned to me in the district north of Pennsylvania Avenue, east of Tenth Street, and north of Massachusetts Avenue.

Passenger elevators installed	20 3
rreight elevators installed	17
Elevators inspected quarterly	302
Total inspections	604
Total condemnations	826
Inspections for United States Government	52
Condemnations on elevators of United States Government	
Miscellaneous inspections, visits, etc	72
Certificates issued	950

Respectfully submitted.

R. H. BRUCE, Inspector of Elevators.

The Inspector of Buildings.

Washington, September 16, 1914.

SIR: We have the honor to submit herewith the report of the transactions of the board of examiners for elevator operators for the fiscal year ending June 30, 1914.

A regular weekly meeting has been held during the year and has resulted in a

satisfactory increase of efficiency in the elevator operators in the District.

Elevator operators examined	365
Operators who failed in examination	31
Revenue derived from examinations for the District of Columbia	\$182, 50
	<b>4</b>

Very respectfully,

ROY E. HAYNES. Secretary Board of Elevator Examiners.

The Inspector of Buildings.

### REPORTS OF THE ASSISTANT INSPECTORS OF BUILDINGS.

WASHINGTON, July 1, 1914.

Sir: In accordance with the following reports of the assistant inspectors for the fiscal year ending June 30, 1914, a decrease of 8,425 inspections is shown in the total of 65,668 against 74,093 the previous year, the average attained being 8,208.50 for the year, or 23.4 inspections daily to the credit of each field inspector.

The slight discrepancy shown in the summary of inspection work for the past year is not due to inactiveness on the part of the field force, but rather to the building operations as carried on throughout the District, having been somewhat different

from the past several years.

It will be noted that for the most part speculative buildings, which create the largest percentage, have not been localized to such an extent as heretofore, that instead of numerous rows or blocks of buildings, the work has been more widely separated. Under these conditions it becomes necessary to devote more time to the inspection work generally, with suitable allowance made for time consumed in reach-

ing the different jobs.

No accidents of serious nature have occurred, except where due to the carelessness of men employed on the work and such have not been due to faulty or defective

construction.

All notices of condemnation with reference to buildings or parts thereof have been consistently complied with and work in general made to conform with the building regulations.

Respectfully submitted.

J. Wm. Downing, Assistant Inspector of Buildings.

The Inspector of Buildings.

Washington, July 1, 1914.
SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1914:
Visits to new buildings. 6,275
Visits to old buildings
Total
Condemnation of buildings or parts thereof
Cast-iron columns inspected
A. K. SELDEN, Assistant Inspector of Buildings.
The Inspector of Buildings.
Washington, July 1, 1914.
Sir: I have the honor ro submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1914:
Visits to new buildings
Visits to old buildings
Total
Condemnation of buildings or parts thereof
A. M. Proctor,
Assistant Inspector of Buildings.
The Inspector of Buildings.
Washington, July 1, 1914.
SIR: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1914:
Visits to new buildings
Visits to old buildings
Visits of miscellaneous character
Total
Condemnation of buildings or parts thereof
S. G. Huntt, Assistant Inspector of Buildings.
The Inspector of Buildings.
Washington, July 1, 1914.
Size: I have the honor to submit herewith the statement of work performed in accordance with my official duties for year ended June 30, 1914:
Visits to new buildings
Visits to old buildings. 3,069 Visits of miscellaneous character. 355
Total
Condemnation of buildings or parts thereof
Cast-iron columns inspected. 20 Buildings taken down 43
Respectfully submitted.  F. J. Niedomauski.
Assistant Inspector of Buildings.
The Inspector of Buildings.
WARHINGTON, July 1, 1914.
Sir: I have the honor to submit herewith the statement of work performed in
accordance with my official duties for year ended June 30 1914:
Visits to new buildings
Visits of miscellaneous character
Total
Total

During this period 20 days were spent in connection with condemnation of buildings for street-extension and public-park purposes, Respectfully submitted.

EDWARD KERN. Assistant Inspector of Buildings.

The Inspector of Buildings.	
Sire: I have the honor to submit herevaccordance with my official duties for Vieits to new buildings	4. 092
TotalCondemnation of buildings or parts thereof	9,480 101
Respectfully submitted.	
The Inspector of Buildings.	E. G. CURTIS, Assistant Inspector of Buildings.
-	Washington, July 1 1914.
SIR. I have the honor to submit herevaccordance with my official duties for yea	with the statement of work performed in
Visits to new buildings	
Total	12, 228 10 62
Respectfully submitted.	
	A. S. J. ATRINSON,
The Inspector of Buildings.	Assistant Inspector of Buildings.
·	Washington, July 1, 1914.
SIR: I have the honor to submit herevaccordance with my official duties for year	with the statement of work performed in
Visits to new buildings Visits to old buildings Visits of miscellaneous character	
Total	5, 439 f
Respectfully submitted.	
•	J. B. Hammond,
The Inspector of Buildings.	Assistant Inspector of Buildings.
Ruborn of Ivaperno	D OR STRAW ROLLEDS

### REPORT OF INSPECTOR OF STEAM BOILERS.

Washington, September 28, 1914.

Su: I have the honor to submit through Mr. Morris Hacker, inspector of buildings, the following report for the fiscal year ending June 30, 1914, together with fees received and expenses incurred.

Boilers inspected	512
Dulers inspected for District of Columbia.	59
Boilers condemned	7
Vests of acale and deposit	20
Defective settings.	4

Defective steam gauges	30
Total amount received for 453 inspections	\$2, 265. 00 452. 10
Balance	1,813.90
Very respectfully,  Inspector The Inspector of Buildings.	E. F. VERMILLION, of Steam Boilers, District of Columbis.

REPORT OF THE BOARD OF EXAMINERS OF STRAM ENGINEERS.

WASHINGTON, September 4, 1914.

SIE: We herewith submit to you the report of the board of examiners of steam engineers for the year ending June 30, 1914.

The following table shows the work as it progressed during each month:

			Applicants					
	Meetings held.	Re- ceived.	Ap- proved.	Incom- petent.	Pirst class.	Second class.	Third Dupli- cass.	
1913. July	3 5 4 5 4	7 23 6 12 8	1 10 1 3 5 5	6 8 5 9 2 4	1 1	1 1 1	6 2 4 3	
January February March April May June	5 4 4 5 4	9 6 12 18 15	8 2 5 7 8	6 4 7 11 12 9	1 1	1 1 2	2 1 2 5 1	1 1 1 1
Total	51	138	49	84	5	7	28	9

In addition to examining applicants for steam engineer license the board has also conducted the examination of applicants for automobile and motorcycle operators, a full report of which is being submitted by the secretary of the automobile board. Our estimate of expenses for the year ending June 30, 1916, is hereto attached, and we respectfully ask that the amount set forth be appropriated.

Respectfully submitted.

E. F. VERMILLION, H. BOESCH, JAS. T. FINE, Board of Examiner.

The INSPECTOR OF BUILDINGS.

### REPORT OF THE INSPECTOR OF PLUMBING.

WASHINGTON, October 1, 1914.

Sm: I have the honor to submit the thirty-second annual report of the work performed by the division of plumbing inspection for the fiscal year ending June 30, 1914. The following table shows the work performed by the outside force of assistant inspectors:

Preliminary inspections	7,065
Cast-iron sewers:	
Now	3, 917 1, 199

Terra-cotta sewers:	
New	
Repairs	481
Main sewers tapped	1, 240
Rough work in-	•
New houses	2,051
Old houses	2, 181
Water services	897
Notices served	318
Peppermint tests and final inspections	3, 621
Work not ready for inspection when ordered	1,010
Changes ordered in work incorrectly installed	389
Special inspections of municipal work	92
Gae	2, 364
Complaints	7,894
•	<del></del>
Total	34, 793

To the above are to be added inspections by the head of the office of a general nature, 316; special inspections on construction work for the District, 208; and by the principal assistant inspector of plumbing, consisting of inspections on complaints relative to illegal plumbing, examinations of materials, visits to the homes of witnesses, and general police work which does not appear elsewhere, 1,860. The total of these inspections should be added to the above total, which gives a general total of 37,177 inspections made by the entire force. Owing to the decrease in the total number of new buildings built and the very great decrease in repairs and remodeling of plumbing the total number of inspections was less than for the last year, but the outlying sections of the city are rapidly being provided with sewer and water, and this more than makes up for the lesser number of inspections by increases in distances covered.

The following table shows the total inspections made each year since the fiscal

year of 1895:

1894-95	5. 708	1904–5	27, 337
1895-96		1905–6	
1896-97		1906–7	
1897-98		1907-8	29, 547
1898-99		1908-9	39, 404
1899-1900		1909–10	44, 953
1900-1901		1910-11	46, 035
1901-2		1911–12	
1902-3	25, 297	1912–13	41,644
1903-4		1913–14	37, 177

It is estimated that the total cost of new plumbing work installed during the year was \$755,000 and the estimate of value of repairs and remodeling work is \$340,000,

both of which were less than for last year.

The total number of inspections made by the outdoor force (34,793) divided by the total number of days in the field gives an average of 17 inspections per day per man, which is, considering the increase in area of the sewer-connected portions of the District, an exceptionally good showing. The greatest number of inspections made by any man in one day was 57.

#### PER DIEM EMPLOYEES.

With the exception of the men employed as temporary assistant inspectors, under the special appropriation for that purpose, there were no other per diem employees in this office during the past year.

#### POLICE COURT CASES.

## These cases were disposed of as follows:

Nol-prossed on compliance with commissioners' order	83 4
Forfeited collaterals. Fined	6
Dismissed	2
Not apprehended	7
Total	59

Total fines and forfeitures of collateral, \$50.

#### OFFICE WORK.

The following table gives the amount of office work performed during the past year and a comparison with that of the five preceding years:

	1909	1910	1911	1912	1913	1914
Official letters.	1,143 4,211 2,761	980 7,204 2,172	2,542 5,240 2,905 9,641 1,223	2.840	1,915	1,136 3,679 1,177 10,262 1,771
Unofficial letters	4 211	7. 204	5,240	4,973	4 138	2 67
Indorsements	2 761	2 172	2 905	2 204	2,118	1,122
Reports of inspectors	2,,,,,	-,-,-	o'Aii	2,840 4,973 2,204 9,659 1,404	0,018	10,363
Indexes			1 222	1,404	1,020	1, 77
Plans prepared		26	30	33	4,138 2,118 9,015 1,673 26	1,771
Specifications prepared	34 36 12	30	45	41	34	
There are the strong property of	30	94		14		
Plans and specifications revised	12		امم	2 2 2		
Examinations of plans for new buildings	2,860 2,225	2,421 4,466	2,278 2,907	3,256 2,263	1,857 3,138	1,518 2,628
Examination of repair applications	2,225	4,466	2,907	2, 263	3, 138	2,64
Postage stamps used:	- 1	. 1			1	
2-cent	3,228	8,558	4,300	3,825 2,345	3,396	3,962
1-cent	192	499	2,297	2.345	1,148	5,206
Postal cards used		919	4,300 2,297 691	89	56	3,962 5,206 751

### COMPULSORY DRAINAGE.

During the past year 61 cases were recommended for compulsory sewer and water connections by the health department and other branches of the District Government. With the exception of a very few cases notices were served. In some instances the legal requirements of service could not be fulfilled; but of those on which such service was completed 14 were torn down, 28 connected with sewer and water by their owners, and in 5 cases sewer and water were provided by the District under contract at a total cost of \$833.18. This amount as divided among the various properties was recommended to the commissioners for assessment. There are several premises now under notice and the completion of these cases will show in the next annual report.

#### PUBLIC CONVENIENCE STATIONS.

During the latter part of the fiscal year by strict economy in the purchase of supplies and allowing the usual supply stock to be materially reduced in anticipation of the coming fiscal year with its larger appropriation, it was possible to reopen the three stations for the full period of 18 hours per day and they are now operating on a more satisfactory basis.

The total attendance during the year at the station at Seventh Street and Pennsylvania Avenue was 922,210; at the station at Thirteenth-and-a-half Street and Pennsylvania Avenue, 396,710, and at the station at Ninth and K Streets, 560,338, making a total of 1,879,258 persons using these stations. The cash receipts from the 5-cent pay compartments and other small sources of income amounted to \$1,913.87, \$630.39, and \$350.32 for the above locations, being a total of \$2,894.58. The total woman patronage was about 19 per cent of the total and they contributed about 9 per cent of the receipts.

These stations are an unquestioned benefit to the citizens of the District and it is very desirable to increase their number as soon as may reasonably be done. Stations of about the same capacity as the present ones are urgently needed at several of our

most congested centers, notably Ninth and F (or G) Streets, Fifteenth Street and New York Avenue, Wisconsin Avenue and M Street, and Fifteenth and H Streets NE., and near the Peace Monument. Smaller stations where they could be under the supervision of a park attendant or bridge watchman might well be built at the Aqueduct Bridge, Calvert Street Bridge, Seventh Street and Florida Avenue, Washington Circle, and many other similar locations.

The General Government has completed the four park lodges which were under construction during the past year and have placed in service small rooms in them which have toilet facilities. Buildings are also being constructed under the municipal architect in connection with the wholesale market improvement, and these buildings will contain small public toilet rooms in locations where they have been badly needed.

will contain small public toilet rooms in locations where they have been badly needed.

In conclusion I take occasion to acknowledge the conscientious and faithful work of the the inspectors and employees in this office and commend their interests to your

earnest consideration.

A. R. McGonegal, Inspector of Plumbing, District of Columbia.

The Inspector of Buildings.

## REPORT OF THE PLUMBING BOARD.

WASHINGTON, D. C., September 15, 1914.

Sir: I have the honor to submit the following report of the work of the plumbing

board for the past fiscal year.

There were held during the year 40 regular and special sessions and consultations for the examination and rating of candidates as master plumbers and gas fitters.

The total number of examinations was 55.

The number of original candidates examined for licensing as master plumbers and gas fitters was 24, of whom 6 passed and 18 failed.

Of those who had been previously examined for licensing as master plumbers and gas fitters 7 passed and 24 failed.

One candidate was examined for licensing as master gas fitter and passed on his first examination.

Examination of candidates appearing before the board two or more times resulted as follows:

Examination.	Passed.	Failed.	Examination.	Passed.	Failed.
Second Third Fourth Fifth.	3 1 0 2	8 5 3 3	Sixth Seventh Eighth	0	2 2 1

Many of the candidates developed a lack of knowledge of simple regulation requirements of work in which they are daily engaged as journeymen, apparently depending entirely upon instructions from their employers and inspectors for proper guidance. Some could not differentiate between a plumbing plan and a plumbing section, after repeated efforts. Others had a very limited knowledge of common rules governing proper and safe methods in supplying water to buildings and of removing water and sewage therefrom.

A large number who failed seemed to be of the opinion that their ability to master the physical subdivisions of the trade only was sufficient to pull them through.

(Messrs. P. C. Schaefer and James S. O'Hagan, whose terms as members of the

board expired June 30, 1913, were reappointed for two years.)

PRIER C. SCHAEFER, President. RICHARD A. O'BRIEN. Secretary.

The Inspector of Buildings.

#### REPORT OF THE MUNICIPAL ARCHITECT.

Washington, October 1, 1914.

Sir: I have the honor to forward herewith the fifth annual report of the office of the municipal architect for the fiscal year ending June 30, 1914.

During the year eight buildings were under construction, as follows:

Building.	Appropriation available.	Cost.	Completed.
Repair and storage building for fire department, North Carolina			
Avenue, between Sixth and Seventh Streets SE	July 1, 1918	\$11,285.00	Feb. 25, 1914
Steam heating system  Electric light and power systems.	• • • • • • • • • • • • • • • • • • • •	1,050.00	Mar. 27, 1914
Electric light and power systems.	• • • • • • • • • • • • • • • • • • • •	795.00 1.041.00	Apr. 13, 1914 June 17, 1914
Alterations and repairs  Alterations and addition to Birney School, No. 127, Nichols		1,021.00	June 17, 1919
Avenue, between Franklin Street and Howard Avenue, Ans-			
enette D C	July 1, 1913	40,000.00	June 6, 1914
Heating and ventilating system		8, 105, 00	May 20, 1914
Disabhasada		55 28	
Alterations and addition to Congress Heights School, No. 111, Nichols Avenue and Hamilton Road, Congress Heights, D.C.			
Nichols Avenue and Hamilton Road, Congress Heights, D.C.	July 1, 1913	25, 947. 00	June 6, 1914
Heating and ventilating system Gas fixtures		7,400.00	May 1, 1914
Gas fixtures		26.50	
Blackboards		34. 59	1
Shelter sheds for farmers' produce market, open space between			l
Tenth and Twelfth, B and Little B Streets, NW	July 1, 1913	11,769.00	Apr. 23, 1914
New Central High School, No. 173, Eleventh and Thirteenth	June 26, 1912	981, 450, 00	
Streets, Florida Avenue, and Clifton Streets NW	July 1, 1913	49.000.00	i
Alterations for accommodation of boilers and coal vault for the	July 1, 1918	<b>₩,</b> 000.00	ł
District of Columbia Jail, reservation No.13, Nineteenth and			1
B Streets SE	Inlv 1 1013	4, 419, 00	Apr. 25, 1914
Two 126-horsepower boilers.	· · · · · · · · · · · · · · · · · · ·	4, 098, 00	Mar. 18 1914
Radial brick chimney			Dec. 23, 1913
Moving and erecting boilers		647.00	
Breeching for boilers Piperbrackets		499.00	
Piperbrackets		61. <b>60</b>	
Piping systems Extension colored men's ward and dining room, Home for the Aged and Infirm, Blue Plains, D. C.		2,235.00	
Extension colored men's ward and dining room. Home for the			1
Aged and Infirm, Blue Plains, D. C	July 1,1911		
	July 26, 1912	20, 337.00	Nov. 22, 1911
Ligue & WULL		1 100.00	Do
Radial brick chimney	• • • • • • • • • • • • • • • • • • • •	1,600.00	Dec. 23, 1913
Normal School, No. 169 (colored), Georgia Avenue, between Howard Place and Fairmont Street, NW. Electrical work, lighting fixtures, conduits, clock and bell	Tuna 26 1019	188, 894, 00	Jan. 21, 1914
Pleatrical work lighting fixtures conduits alose and hall	June 20, 1912	100,094.00	78U. AI, DUI
Systems		3,659.00	Feb. 21, 1914
Wire guards, basement windows and doors		385.00	June 2, 1914
Blackboards		240.00	-,200
		-30.00	

### PLANS.

The plans for the school buildings have been approved by the assistant to the engineer commissioner, the inspector of buildings, the chief of the fire department, and finally approved by the commissioners. The superintendent of schools has made frequent visits to this office to examine the plans and consult on details while the plans were being prepared. The chief of the fire department and the superintendent of markets have also cooperated in the preparation of plans before their completion. I respectfully suggest that this is the proper way to assist in the preparation of these plans—while they are in the formative state—as the plans, when completed, will have cost, for drafting services and materials, between \$500 and \$5,000, and if changes or alterations are made after their completion, it will result in a loss of time and additional expense. The superintendent of schools and the heads of all departments for whom plans are being prepared have been advised when plans for the several buildings are started and requested to call at any time and make suggestions concerning them.

## Minor repairs and improvements.

Building.	Work.	Date of advertisement.
Congress Heights School	Heating and ventilating.	July 1, 1918
Garfield School	Two hot-air furnaces	July 10, 1913
Western High School	Two hot-air furnaces. Plumbing in basement tollet room.	July 1, 1913 July 10, 1913 July 12, 1913
Normal School No. 169	Electric lighting fixtures, conduits, telephone, clock, and hell systems.	July 18, 1913
Public Library, District of Columbia	Repairs to boiler	July 28, 1913
Repair and storage building for fire department.	Repairs to boiler	Aug. 1, 1913
Birmey School. Congress Heights School	Alterations and construction of additiondo	Aug. 14, 1913 Do.
District Jall	Alterations in boiler room and coal vault	Aug. 16, 1913
Engine House No. 4	Installation of iron beams and columns to sup-	Aug. 16, 1913 Aug. 21, 1913
Henry School	Repairing stack	Aug. 26, 1918
Powell School	Kapair of motors	Aug. 20, 1913
Cleveland School	do	Do.
Curtis School	Retubing boiler	Aug. 30, 1913
	do. Retubing boller Hauling from Hubbard School to site of Park View School.	Sept. 16, 1918
Horne for Aged and Infirm	Construction of radial brick chimney	Sept. 26, 1913
District Juli	do	Do.
Do	Installation of boilers (bids rejected)	Oct. 14, 1918
Birney School	Heating and ventilating	Oct. 17, 1918
department.	Steam neating system	Do.
Inherenlosis Hospital	Vertical boilers (no bids)	Do.
Public Crematorium	Installation furnace	Oot 28 1018
Tuberculosis Hospital	Installation furnace.  Vertical boilers (bids in excess of appropriation);	Oct. 28, 1913 Oct. 30, 1913
	ordered purchased in open market.	000. 00, 1919
District Jail	Moving and erecting 2 bollers from old work- house to new boller plant.	Oct. 31, 1918
New Central High School	Construction building (bids rejected)	Nov. 4, 1913
Eastern High School	Grill work in windows	Nov. 7, 1913
District Jail	Two 125-horsepower boilers	Nov. 8, 1913
Police Court	Addition to electric lighting system	Dec. 2, 1918
Restern High School	Retubing 2 boilers	Dec. 9, 1913 Dec. 13, 1913
Farmers' Produce Market	Construction of shelter sheds	Dec. 13, 1913
Tuberculosis Hospital	Installation stereopticon circuit	Dec. 30, 1913
Engine House No. 6	Concrete and brick work.	Jan. 9, 1914 Jan. 12, 1914
Do.	Installation ironwork in new fireproof floor	Ton 12, 1914
Repair and storage building for fire	Electric light and power systems.	Jan. 13, 1914 Jan. 28, 1914
department. New Central High School	Construction of building	Feb. 5, 1914
Do.	Excavation for building	Do. 5, 1914
Do Normal School No. 169	Excavation for building	Mar 27 1014
District Jail	Installation of breeching for boilers	Mar. 30, 1914
Parce School	Ventilating system	Apr. 6, 1914
Repair and storage building for fire department.	·	Apr. 17, 1914
District Jail	Installation pipe brackets	Apr. 15, 1914 Apr. 28, 1914
_ Do	Installation piping system, etc	Apr. 28, 1914
Engine House No. 25	One cast-iron boiler	May 9, 1914
Congress Heights School	Installation of gas fixtures	May 20, 1914
District schools	Repairs to furnaces	MBY 20, 1914
Henry D. Cooke SchoolLucretia Mott School	Installation not-air nirnacesdo	May 26, 1914 May 21, 1914 Do.
Engine House No. 20.	do	June 3, 1914
	TITIS CONTINUE AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISSUES AND ISS	Julio 3, 1919
Tuberenlogie Hospital	COVERING FOR DOLLERS SING DESECTING	
Tubereulosis Hospital	Covering for boilers and breeching	June 10, 1914
Tuberenlosis Hospital	Covering for boilers and breeching.  Removal of old frame building (one bid; rejected)  Enlarging outhouses.	June 10, 1914 Do. June 23, 1914

In the annual reports for previous years the cubic cost of District buildings has been given from the year 1897 to the year 1913, inclusive. The cost of the buildings erected during the past fiscal year, all of which were designed by the municipal architect, is as follows:

### Cubic cost of buildings.

Building—Name, number description, and location.	Cost.	Cubic contents.	Cost per cubic foot.	Heating plan.
Repair and storage building for fire depart- ment, North Carolina Avenue between Sixth and Seventh Streets SE.	\$14, 151	Feet. 151,533	Cente. 9.33	Steam, direct.
Alterations and addition to Birney School, No. 127, Nichols Avenue between Frank- in Street and Howard Avenue, Anacos- ta, D. C.	48, 105	832, 820	14.45	Steam, direct, and fan system.

## Cubic cost of buildings-Continued.

Building—Name, number, description, and location.	Cost.	Cubic contents.	Cost per cubic foot.	Heating plan.
Alterations and addition to Congress Heichts School, No. 111, Nichols Avenue and Hamilton Road, Congress Heights, D. C.	83,347	Feet. 238, 399	Cents. 13.98	Steam, direct, and fan sys- tem.
Shelter sheds for farmers' produce market, open space between Tenth and Twelfth, B and Little B Streets . W.	11,769	98,000	12.00	
Alterations for accommodation of boilers and coal vault for District of Columbia Jail, reservation No. 13, . ineteenth and B Streets SE.	4,419	81, 762	15.47	

The plans for all the buildings in the foregoing table were prepared in the office of the municipal architect. The question was raised in August, 1909, as to the authority to employ architects to assist in the preparation of plans and the Comptroller of the Treasury rendered a decision August 18, 1909, to the effect that the duties of the municipal architect are supervisory and that he is permitted to employ outside architects to assist in the preparation of plans, and that he is to direct any expenditures necessary for and incidental to the preparation of such plans ....d the construction of the buildings.

#### HEATING PLANTS AND PUEL,

In the fall of 1909 this office instituted an inquiry as to the consumption of fuel in the public-school buildings, to develop any defects which might exist in the heating plants. For many years the expenditure for fuel and lighting has been about \$90,000 per annum; the municipal architect addressed an inquiry to the purchasing officer of the District as to the cost of fuel for each plant. The auditor of the District the reupon prepared a table showing the expenditure for fuel in the several school buildings for four consecutive years. It was thus ascertained that the consumption of fuel in buildings of practically the same plan and design and similar with respect to arrangement and type of heating apparatus varied greatly; in some instances an 8-room building appeared to have consumed more than twice as much fuel as a similar building with the same size and type of apparatus. With this table as a basis, tests were made as to the capacities for fuel consumption at several of the buildings where the amount consumed appeared to be excessive. The following year a heating, ventilating, and sanitary engineer was employed and the efficiency of the heating plants was more thoroughly inquired into.

The heating, ventilating, and sanitary engineer of this office has designed several plants with down-draft boilers and made other changes to encourage the use of soft coal and at the same time to avoid the smoke nuisance. A central heating plant has been constructed with automatic stokers, guaranteed to prevent objectionable smoke while using soft coal. The grates in some plants are undergoing changes to better adapt them for soft coal, and other plants of this kind have been recommended and included in the estimates for appropriations.

The M Street central heating plant shows a saving over the yearly average cost of fuel for four years prior to the construction of the plant of \$846.05 per year. Dent School, where down-draft boilers were installed, shows a saving of \$452.32 per year. The Reno School shows a saving of \$291.30 per year on the hard-coal basis. The reports from the auditor's office show a saving of \$12,000 a year on the cost of fuel, notwithstanding the fact that there are several buildings added each year.

Services, annual and per diem (exclusive of blue printer), for year beginning July 1, 1918, and ending June 30, 1914.

On annual roll	\$12,000,00
On per diem roll:	,,
Inspectors	5, 978, 25
Draftsmen	2, 073, 25
Copyists	

Total cost of services for year .....

Recommendation has been made in the annual estimates that the blue printer be placed on an annual salary instead of his compensation being charged to numerous appropriations and their reimbursement depending upon repay vouchers. It sometimes happens that certain branches of the District government require plue prints for use in obtaining proposals and for working drawings without any appropriation properly chargeable for such work. Under the present arrangements the offices are each charged with the cost of the work in proportion to the area of the blue printing done for them, but the cost of materials and the wastage can hardly be equitably distributed, and the cost of repairs of the blue-printing machine is paid for from the contingent fund of the engineer department. The placing of the blue printer on an annual salary and providing for the maintenance of the machine would simplify this branch of the work and save a large amount of clerical labor and uncertainty as to the proper charges.

COST OF BUILDING REPAIRS.

In the annual report of last year and the year before the costs of repairs were given in comparison with such costs in other cities of nearly equal importance and size. These costs have been reduced to the cost per square foot of floor surface, cost per building, per room, and per pupil on average attendance. The cost has also been figured in ratio to the entire costs of the schools in this and other cities, and from these figures it appears that Washington is next to the lowest in cost of repairs, not-withstanding the fact that we are here at a disadvantage in cost comparisons for the reason that in other cities the actual "repairs"—that is, replenishments—are paid from one fund, and the "improvements"—that is, enlargements or changes or betterments—are paid from another fund, while here all those things are charged to "repairs." This, of course, makes it appear at first sight that our repairs cost more than they really do.

I beg to call attention to the form used by the Bureau of the Census for collecting data concerning the cost of "repairs" separate from the "outlays" and the "equip-

ment.

The report of the Bureau of Education for 1911 and 1912, issued in 1913, gives very extensive tables showing the relative cost of the schools and cost of buildings, repairs, and betterments in most all cities of 10,000 inhabitants or over, but it was a source of surprise and disappointment to find that such figures are not given in the report for the National Capital.

I submit herewith a statement from the superintendent of repairs showing the cost of repairs in detail on each and every building; also showing what proportion of

the funds were spent for labor and what for materials.

In estimating for appropriations for repairs I would invite attention to the fact that within the past three years the cost of labor has advanced about 20 per cent, and we have notice from one branch of the building trade that wages will be advanced 10 per cent next August. If this is taken into consideration, with the fact that for the past five years the buildings have increased at the rate of about 10 a year, it will partially account for the increase in the appropriation for repairs. Certain building materials have also advanced in cost, especially lumber, and I trust that a sufficient appropriation will be made for the repair of the District buildings.

Respectfully submitted.

Snowden Ashford, Municipal Architect.

Capt. R. G. POWELL,

Corps of Engineers, United States Army,

Assistant to Engineer Commissioner District of Columbia.

Repairs and improvements to engine houses and grounds, 1914.

#### [Appropriation, \$16,000.]

Class of work.	Labor.	Material.	Contract.	Total.
No. 1 angine house: Carpentering	75 N3	\$254. 57 66. 03 205. 01 46. 75 . 74		\$741. 56 141. 06 314. 13 166. 61 . 74
Total	791.00	573, 10		1, 364. 10

# Repairs and improvements to engine houses and grounds—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
No. 2 engine house:	<del></del>			
Carpentering	\$76, 56	\$31.04		\$107.60
Phimbing	7. 50	2. 12		9. 62
Painting and glazing Steam fitting.	.44	. 54		.96
Steam fitting.	31.66	67. 73		99, 36 10. 80
Miscellaneous	10. 80		•••••	10.80
Total	126.96	101, 43	·	228, 30
Io. 4 engine house:				
Carpentering	653, 88	483.55		1, 137. 43
Tinning	86.07	124, 81		210.86
Heating.		1.00		1.00
Plumbing.	12, 75 33, 69	4. 61 18. 76		17.36 52.45
Painting and glazing Miscellaneous	25. 60	19, 10	\$300.00	341.7
Total	811.99	651. 83	300.00	1, 763. 8
o. 5 engine house:	010.04	105 65		
Carpentering	210.24	125. 87		336.11
Heating.	1.00	. 60 16. 12	[	1.60 -28.90
Plumbing. Painting and glazing	12. 81 21. 88	12.81		34.6
Total	245, 93	155. 40		401.3
o. 6 engine house:			1	
Tmning.	6, 44	8.03		14.5
Carpentering	.50	.78		.75
Heating. Plumbing.	.25	.22		.77
Plumbing. Painting and glazing.	2.63	.88		3, 51
Miscellaneous.	2.00	.75	588. 00	588.7
Total	9. 82	10.66	588, 00	608.40
o. 7 engine house:			1	
Carpentering. Tinning.	306.78	158, 66		465.4
Tinning	21.97	35.02		56.99
Plumbing	14. 37	11.07		25.4
Painting and glazing	35.00	18.51		53.51 1.00
Steam fitting	. 93 1. 56	.07	[	2.31
		ļ		
Total	380. 61	224. 08		604.69
lo. 8 engine house:			l i	
o. 8 engine house: Carpentering	71.46	43.62	ll	115.08
Tinning.	9.88	9.50		19.38
Plumbing.	24. 19 16. 75	7. 27 8. 38		31.46 25.13
Painting and glazing	10. 73	0.30		
Total	122. 28	68.77	<u> </u>	191.06
o. 9 engine house:			1	
Carnentering	94. 76	42, 16	1	136.92
		27. 17	1	67.95
Tinning	40.78	21.11		
Tinning. Plumbing	40.78 2.50	4.09		6.59
Tuning. Plumbing	40. 78 2. 50 109. 31	4. 09 37. 07		146.38
Timing. Plumbing anting and glasing Steam fitting.	2.50	4.09		
Timming. Plumbing. ainting and playing	2.50 109.31	4. 09 37. 07 1. 11		146.38
Timing. Plumbing. ainting and glazing Steam fitting. Total.	2. 50 109. 31 247. 35	4.09 37.07 1.11 111.60		146.38 1.11 358.96
Timing Plumbing ainting and glazing Steam fitting.  Total.  0. 10 engine house: Carpentering	2. 50 109. 31 247. 35	4.09 37.07 1.11 111.60		146.38 1.11 358.95
Timing Plumbing sinting and glazing Steam fitting Total	2. 50 109. 31 247. 35 122. 12 14. 03	4.09 37.07 1.11 111.60		146.33 1.11 358.95 168.77 17.60
Trining Plumbing ainting and glazing Steam fitting  Total  0. 10 engine house: Carpentering Tinning Plumbing	2. 50 109. 31 247. 35 122. 12 14. 03 17. 51	4.09 37.07 1.11 111.60 46.65 3.57 8.73		146.33 1.11 358.95 168.77 17.60
Trining Plumbing ainting and glazing Steam fitting  Total.  o. 10 engine house: Carpentering Trining	2. 50 109. 31 247. 35 122. 12 14. 03	4.09 37.07 1.11 111.60		146.38 1.11 358.95
Training Plumbing ainting and glazing Steam fitting Total  0. 10 engine house: Carpentering Tinning Plumbing	2. 50 109. 31 247. 35 122. 12 14. 03 17. 51	4.09 37.07 1.11 111.60 46.65 3.57 8.73		146.33 1.11 358.95 168.77 17.60
Tuning. Plumbing. ainting and glazing Steam fitting.  Total.  O. 10 engine house: Carpentering. Tinning. Plumbing. Painting and glazing.  Total.  Total.	2. 50 109. 31 247. 35 122. 12 14. 03 17. 51 9. 51 163. 17	4.09 37.07 1.11 111.60 46.65 3.57 8.73 4.34 63.29		146.33 L.11 358.95 108.77 17.00 26.34 13.55
Timing Plumbing ainting and glazing Steam fitting  Total.  o. 10 engine house: Carpentering Timing. Plumbing. Painting and glazing.  Total.  o. 11 engine house: Carpentering	2.50 109.31 247.35 122.12 14.03 17.51 9.51 163.17	4. 09 37. 07 1. 11 111. 60 46. 65 3. 57 8. 73 4. 34 63. 29		146.33 L.11 358.95 168.77 17.00 24.24 13.55 228.46
Training Training and glazing Steam fitting Total  Io. 10 engine house: Carpentering Training Plumbing. Painting and glazing Total  Io. 11 engine house: Carpentering Training Total  Total  Total  Training Total  Total  Training	2.50 109.31 247.35 122.12 14.03 17.51 9.51 163.17	4. 09 37. 07 1. 11 111. 60 46. 65 3. 57 8. 73 4. 34 63. 29		146.33 1.11 358.95 108.77 17.00 26.34 13.55 228.46
Tuning. Plumbing. sainting and glazing. Steam fitting.  Total.  io. 10 engine house: Carpentering. Tinning. Plumbing. Painting and glazing.  Total.  io. 11 engine house: Carpentering. Tinning. Plumbing. Plumbing.	2.50 109.31 247.35 122.12 14.03 17.51 9.51 163.17 58.29 18.72 28.55	4.09 37.07 1.11 111.60 46.65 3.57 8.73 4.34 63.29 38.48 11.13 25.44		146.38 L.11 358.95 168.77 17.00 26.34 13.55 228.46 98.77 28.85 53.89
Timing Plumbing. Painting and glazing. Steam fitting.  Total.  No. 10 engine house: Carpentering. Timing. Plumbing. Plumbing. Painting and glazing  Total.  No. 11 engine house: Carpentering. Timing.	2.50 109.31 247.35 122.12 14.03 17.51 9.51 163.17	4. 09 37. 07 1. 11 111. 60 46. 65 3. 57 8. 73 4. 34 63. 29		146.33 1.11 358.95 108.77 17.00 26.34 13.55 228.46
Tuning Plumbing Sainting and glazing Steam fitting Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total  Total	2.50 109.31 247.35 122.12 14.03 17.51 9.51 163.17 58.29 18.72 28.55	4.09 37.07 1.11 111.60 46.65 3.57 8.73 4.34 63.29 38.48 11.13 25.44		146.38 L.11 358.95 168.77 17.00 26.34 13.55 228.46 98.77 28.85 53.89

# Repairs and improvements to engine houses and grounds—Continued.

Class of work.	Labor.	Muterial.	Contract.	Total.
No. 12 engine house:				
Carpentering	\$394.09	\$239.58		\$633. 67
Imning	8. 25	6,50		14, 75 2, 25
Heating	. <b></b>	2. 25		2, 25
Plumbling. Painting and glazing.	3. 25	10.94		14. 19
rainting and glazing.	23. 18	15.84		<b>39</b> . 02
Total	428.77	275. 11		703.88
No. 13 engine house;				
Carpentering	214. 17	261.11		475. 28
Plumbing. Painting and glazing.	7.94	2.27		10. 21
Painting and glazing	135.38	55.52	<b>-</b>	190. 90
Steam ntting	12.72	.39		13. 11
Miscellaneous	[		\$41.65	41.65
Total	370. 21	319. 29	41.65	731. 15
No. 14 engine house:				
Carpentering	54.69	57.76		112.45
Tinning	98.45	110.08		208.63
Heating.	98. 45 16. 75	5.97		208. 53 22. 72
Plumbing	2.44	.61	J	3.06
Painting and glazing	. 63	1. 18		1.81
Total	172.96	175.60		348. 56
No. 15 engine house:				
Carpentering	52.01	17.01		69.02
Timing	6.88	. 79		7.67
Plumbing	42.40	5.90		48.30
Painting and glazing	5. 20	3.88		9.08
Painting and glazing. Miscellaneous		.01		.01
Total.	106, 49	27.59	<u>'</u>	134.08
No. 16 engine house:	22.00	5. 24	!!!	27. 24
Carpentering Timing	158.92	214.09		873, 01
	1	2. 25		2 25
Plumbing	10.82	3.09		2, 25 13, 91
Plumbing. Painting and glazing.	4.94	2.05		6, 99
Miscellaneous	3. 15			3, 15
	199. 83	226, 72		426, 55
Total	199.63	220.12	<u> </u>	120.00
No. 17 engine house:	80.04	23, 94	1 1	87.88
Carpentering	63. 94 12. 77	14.84		27.61
Timing Plumbing Patrice	2.13	14.01		2, 13
Painting and glazing	10. 19	5, 25		15. 44
	89.03	44.03		133.06
Total.	89.03	<b>94.</b> US		133.00
No. 18 engine house:	600.00	100 00	1	200
Tinning	203.96	135.93		339.89
Carpentering. Timing. Heating	14.37	12.12	j	26. 49 2. 50
Heating Pinnships	4.01	2,50 1,77		2. 50 5. 78
Plumbing Painting and glazing Steam fitting Miscellaneous	4.01	1.74		1.39
Steen data.	. 44	.95		1.39
Wiesellen	. 66		}····	. 66 . 50
######################################	.50		<u> </u>	
Total	223.94	153. 27	,	377. 21
No. 19 engine house:	20.00	£0.00	i	00.70
Carpentering	27.38	53.32		80.70
Tinning	. 86.00	87.69		173.69
	7. 13	2,50 2,76		2, 50 9, 89
Plumbing Painting and glazing	7. 44	3.90		11.34
	127. 95	150, 17	i——	278. 12
No. 20 engine house:	121.30	.50.11		
(Almentaring	188. 91	73, 35	l	262.26
Tinning	20. 81	28.98		49, 79
Tinning Heating Plymark	8.69	6.53		15. 22
Plumbing	17.31	2.29		19.60
Painting and glazing	19.51	10.65		30.16
Total	255. 23	121.80		377.03

# Repairs and improvements to engine houses and grounds, 1914—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
io. 21 engine house and No. 9 truck house: Steam fitting	\$4.34 138.60	\$0.08 226.98		\$4. ( 305. l
Tinning	23.50	17.07		40.
Plumbing	1. 75	.54		2.
Painting and glazing	9.25	2.27		n.
Painting and glazing		.57		
	177.44	247.51		ØL:
Total	1//.44	227.01		<u> </u>
o. 22 engine house: Carpentering	832. 30	196.83	l	<b>529</b> .
Tinning	11.50	5.58		17.
Plumbing	47. 13	79.14		126.
Heating		.02		-
Heating Painting and glazing	139. 63	54.09		198.
Total	530.56	835.66		866.
o. 23 engine house:		-		<del></del> -
Carpentering	44.00	30, 18		74.
Tinning	3, 59	.46		4
Plumbing	4.81	.51		4.
•				
Total	52. 40	31. 15		83.
o. 24 engine house:			l i	
Carpentering. Plumbing	6.49	.73 .68		7.
Painting and glaving	50.00	16.16		66.
Painting and glazing Steam fitting.	5.47	27.30		32
Miscellaneous	0.41	.20		-
Total	61.96	45.07		107.0
o. 25 engine house and No. 8 truck house:	040.07			
Carpentering	340.97 1.82	121.41		462
Carpentering. Painting and glazing. Steam fitting.	165-83	145.12		310.5
Total	508.62	267.90		776.
o. 26 engine house:	00.41	62.39		
Carpentering	89. 41 6. 25	5.94		151.1 12.
Painting and glasing	15.69	5.99		21.
Plumbing. Painting and glazing. Miscellaneous.	1.50			L.
Total	112.85	74.82		187.
	112.60	/12:02		15/-
o. 1 chemical house: Carpentering.	262.65	158.71	1	421.3
CarpenteringTinning.	8. 25	8. 33		11
Plumbing	5. 31	.05		11.5 5.5
Total	276. 21	162.09		438.1
•	210.21	102.08		700.
o. 2 chemical house:	47 00		! '	
Carpentering	47.50	32.87		80.
Timing. Plumbing Pathting and glazing Steam fitting	19. 25 8. 31	3.84		23.
Painting and glasing	0. 01	4.49 1.23		12.1 1.1
Steam fitting	1.93	. 39		2.
Miscellaneous	19. 99	6.08		25.0
Total	96, 98	48, 90		145.8
o. 3 chemical house:				
Plumbing	1.50			1.5
::				
a 1 truck house:	11.31	42, 14		53. 4
o. 1 truck house: Carpentering		68.10		121.7
Carpentering	55.69			160
Carpentering	55.68 1.44	87		2.2
Carpentering	1. 44 7. 63	.87 3.30		2.1 10.9
Carpentering	55.68 1.44 7.63 .87	.87		10. f 1. s
Tinning	1. 44 7. 63	. 87 3. 30		10.1

# Repairs and improvements to engine houses and grounds, 1914—Continued.

2 truck house:   Carpentering	\$237. 26. 10. 63.
Timing       17.46       8.93         Plumbing       8.06       2.09         Panting and glazing       46.75       16.22         Miscellaneous       .08         Total       231.71       105.50         .3 truck house:       55.71       64.04         Carpentering       55.71       64.04         Timing       61.13       59.02         Plumbing       4.06       45         Painting and glazing       .56       4.31         Total       121.46       127.82         .4 truck house:       113.58       83.88         Carpentering       35.22       12.23         Total       154.98       100.49         .5 truck house:       24.28       83.03         Carpentering       94.28       83.03	26. 10. 63.  387. 119. 4. 4. 249.
Plumbing       8.06       2.09         Pathting and glazing       46.75       16.32         Miscellaneous       .08         Total       231.71       105.50         3 truck house:       55.71       64.04         Carpentering       51.13       59.02         Plumbing       4.06       45         Painting and glazing       .56       4.31         Total       121.46       127.82         4 truck house:       113.58       83.88         Carpentering       3.75       3.50         Plumbing       2.43       1.38         Painting and glazing       35.22       12.23         Total       154.98       100.49         5 truck house:       24.28       83.03	10. 68.  387. 119. 4. 249.
Total	887. 119. 120. 4. 249.
Total	119. 120. 4. 4. 249.
Total	887. 119. 120. 4. 249.
Struck house:   Carpentering	119. 120. 4. 4. 249.
Carpentering     55.71     64.04       Timing     61.13     59.02       Plumbing     4.06     .45       Painting and glazing     .56     4.31       Total     121.46     127.82       .4 truck house:     113.58     83.38       Carpentering     8.75     8.50       Plumbing     2.43     1.38       Painting and glazing     35.22     12.23       Total     154.98     100.49       .5 truck house:     24.28     83.03       Carpentering     94.28     83.03	120. 4. 4. 249.
Carpentering     55.71     64.04       Timing     61.13     59.02       Plumbing     4.06     .45       Painting and glazing     .56     4.31       Total     121.46     127.82       .4 truck house:     113.58     83.38       Carpentering     8.75     8.50       Plumbing     2.43     1.38       Painting and glazing     35.22     12.23       Total     154.98     100.49       .5 truck house:     24.28     83.03       Carpentering     94.28     83.03	120. 4. 4. 249.
Tinning         61.13         59.02           Plumbing         4.06         45           Painting and glazing         .56         4.31           Total         121.46         127.82           4 truck house:         113.58         83.88           Carpentering         3.75         3.50           Plumbing         2.43         1.38           Painting and glazing         35.22         12.23           Total         154.98         100.49           .5 truck house:         24.28         83.03	120. 4. 4. 249.
Phimbing     4.06     .45       Painting and glazing     .56     4.31       Total     121.46     127.82       .4 truck house:     113.58     83.88       Carpentering     3.75     3.50       Plumbing     2.43     1.38       Painting and glazing     35.22     12.23       Total     154.98     100.49       .5 truck house:     24.28     83.03       Carpentering     94.28     83.03	4. 249.
Total	249. 196.
Total	196.
Carpentering.       113.58       83.88         Timing.       3.75       3.50         Plumbing.       2.43       1.38         Painting and glazing.       35.22       12.23         Total       154.98       100.49         a.5 truck house:       94.28       83.03	
Carpentering.       113.58       83.88         Timing.       3.75       3.50         Plumbing.       2.43       1.38         Painting and glazing.       35.22       12.23         Total       154.98       100.49         a.5 truck house:       94.28       83.03	
Timing	
Total	7.
Total	8.
Total	47.
b. 5 truck house: Carpentering 94.28 83.03	
Carpentering 94.28 83.03	255.
Carpentering 94.28 83.03	
	177.
Plumbing	42.
Painting and glazing	261.
Total	481.
o. 6 truck house:	
On	125.
Tinning 2.93	2
Heating 101.79 185.17	286.
Plumbing 2.25 .97	3.
Painting and glazing	72
Carpentering	
Total	491.
e. 7 truck house:  Carpentering	261.
	19.
Tinning 11.65 7.81	35
Painting and glazing 3.94 3.03	6.
Plumbing         17.13         17.92           Painting and glazing         3.94         3.03           Steam fitting         6.76         23.38	30
Total	352
e. 10 truck house:	
Carpentering	71
Tinning 11.00 5.78	16.
Plumbing 2.57	2.
Painting and glazing 4.00 1.84	5
Total	96
Painting and glazing 2.57 Painting and glazing 4.00 1.84	

## Repairs and improvements to police stations and grounds, 1914.

### [Appropriation, \$5,500.]

Class of work.	Labor.	Material.	Total.
No. 1 molles station:			
No. 1 police station: Carpentering	\$56.34	\$21.94	\$77.56
Mandag	100.51	202.41	303.90
Heating	11.50	2.50	14.60
Plumbing	27.89 3.13	11.95 1.15	39.84 4.26
Heating Plumbing Painting and glazing Steam fitting	5. 35	2.34	7.6
Total	204.72	241.50	446.31
į.			
No. 2 police station: Carpentaring Tinning Plum bing	54, 20	34.78	86.96
Tinning	43.00	34.78 90.75	133.75
Plum bing Painting	18.94	2.48	21.43
Painting	8.44	3.63	12.07
Total	124.58	131.64	256.22
No. 3 police station:			
Carpentering	78.00	25.50	103.50
Heating	2.21	4.60 4.82	6.81
Plum bing Painting and glazing	23.82 86.38	4.82 35.43	28.64 121.81
Painting and glazing	80.46	30.48	121.84
Total	190.41	70.35	260.76
No. 4 police station:			
Comenteding	200.66	84.06	28L 72
Tinning	41.23	86.85	128.97 82.82
Heating	8.75 21.38	73.77 44.59	65.97
Tinning Heating Plumbing Painting and glazing	16.38	5.61	21.99
Total.	288, 30	294.88	5R3. 27
No. 5 police station: Carpentering	38.57	19.49	58.06
Heating		.96	.95
Plumbing	52.87	38.01	90.55
Painting and glazing	23.25	7.28	30.66
Painting and glazingSteam fitting	15.58	35.99	51.53
Total	130.35	101.72	232.07
io. 6 police station:			
Carpentering.	84.07	17.75	101.83
Tinning	58.63	98.17	156.80
Heating	22.50	21.41	43.91
Pointing and closing	. 75 10. <b>13</b>	5.23	.75 15. <b>36</b>
Plumbing Painting and glaxing Steam fitting	23.84	12.67	36.51
Total.	199.92	155.28	365.15
į			
No. 7 police station: Carpentering	21.25	1.87	23, 12
Tinning	62, 85	62, 19	125.04
Heating	2.96	20.20	23, 16
Plumbing	13.80	.07	13.87
Plumbing Painting and glazing Painting and glazing	4.94	.88	5.8
Total	105.80	85.21	191.01
o, 8 police station:			
	156. 19	89.18	245.87
Tinning	30.32	52.46	82.78
Heating	87.20	2.45 17.22	2.5 54.0
Pointing and closing	17.81	17.50	25.4
Carpentering. Tinning. Heating. Plumbing Painting and glazing Steam fitting.	.62	1.78	2.20
Total	242, 14	180.59	432.73
		53,79	183.94
No. 9 police station: Carpentaring	120.15		
%. 9 police station: Carpentering	129. 15 38. 46	58.79 19.54	58.00
No. 9 police station:  Carpentaring	38. 46 39. 45	12.45	51.98
No. 9 police station: Carpentering	38.46	19.54 12.48 4.88	

## Repairs and improvements to police stations and grounds, 1914—Continued.

Class of work.	Labor.	Material.	Total.
io. 10 police station:			
Carpentering	\$102.57 14.00	\$35.71 1.23	\$138.24 15.22
Heating	. 44 38. 24		41.19
Plumbing	28. 24 92. 44	2.95 24.33	41.19 116.77
Painting and glazing	2.63	<b>29.</b> 00	2.6
Miscellaneous	1.25	.20	1.4
Total	251.57	64. 42	815.90
o. 11 police station:			
Carpentering	13.50 2.74	13.66	27.16 8.06
Tinning Plumbing	8. 62		3.62
Total	19.86	13.98	33.84
enley substation:	**********		
Carpentering Painting and glasing	38. 13	16.51	54.64
	4.18	4.33	8.51
Total	42.31	20.84	63. 15
arbor precinct:		• • •	
Tinning Plumbing	8.74 8.25	5.10 .80	13.84 4.06
Painting and glasing	.88	:20	ī. ĭ7
Total	12.87	6.19	19.00
<del></del>			
SUMMARY.			
otal amount of labor accounted for on written orders.		. <b></b>	. \$2,028.86
otal amount of labor accounted for on written orders		· · · · · · · · · · · · · · · · · · ·	. 1,457, 33
otal amount of labor accounted for on written orders	rious station	<b>18</b>	. 1,457.83 . 530.93 . 4.50
otal amount of labor accounted for on written orders	rious station	18	1,457.33 . 530.93 . 4.50 . 8.22
otal amount of labor accounted for on written orders	rious station	18	1,457.33 . 530.93 . 4.50 . 8.23
otal amount of labor accounted for on written orders	rious station	18	1,457.33 . 530.93 . 4.50 . 8.23
otal amount of labor accounted for on written orders	rious station	18	1,457.33 . 530.93 . 4.50 . 8.23
otal amount of labor accounted for on written orders. otal amount of material accounted for on written orders. Iscellaneous time and material used in shop on written orders for va ro rata share of purchase of harness. ss consumed in machine shop liotment to sand wharf liotment to purchasing office (for inspector). liotment to engineer stables (forage, etc., for 9 months). orage for July, August, and September liotment to U Street stables (new roof)	rious station	35	. 1,457.33 . 830.93 . 4.50 . 8.23 . 1.54 . 10.00 . 82.39 . 18.31 . 2.90
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Iscalianeous time and material used in shop on written orders for va ro rata share of purchase of harness.  sa consumed in machine shop.  llotment to sand wharf.  llotment to purchasing office (for inspector).  llotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  llotment to U Street stables (new roof).	rious station	35	. 1,457.33 . 830.93 . 4.50 . 8.23 . 1.54 . 10.00 . 82.39 . 18.31 . 2.90
otal amount of labor accounted for on written orders. otal amount of material accounted for on written orders. Iscellaneous time and material used in shop on written orders for va ro rata share of purchase of harness. ss consumed in machine shop liotment to sand wharf liotment to purchasing office (for inspector). liotment to engineer stables (forage, etc., for 9 months). orage for July, August, and September liotment to U Street stables (new roof)	rious station	10	. 1,457.33 . 830.93 . 4.50 . 8.28 . 1.54 . 10.00 . 82.39 . 18.31 . 2.90 . 1,339.22 . 20.79
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Iscellaneous time and material used in shop on written orders for va ro rats share of purchase of harness.  se consumed in machine shop.  llotment to sand wharf.  llotment to ongineer stables (for inspector).  llotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  llotment to U Street stables (new roof).  mount of stock on hand.	rious station	10	. 1,457.33 530.93 4.50 . 8.23 . 1.54 . 10.00 . 82.39 . 2.90 . 1,339.22 . 20.79
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Is callaneous time and material used in shop on written orders for var or rats share of purchase of harness.  as consumed in machine shop.  liotment to sand wharf.  liotment to purchasing office (for inspector).  llotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  llotment to U Street stables (new roof).  mount of stock on hand  naxpended.  Total.  Contingent and miscellaneous expenses, District of Colum intendent of repairs.	rious station	, motor tru	1,487.33 530.93 4.50 8.23 1.54 10.00 18.31 2.90 1,339.22 20.79 5,800.00 ck, super-
otal amount of labor accounted for on written orders. otal amount of material accounted for on written orders. Il scellaneous time and material used in shop on written orders for va ro rats share of purchase of harness. se consumed in machine shop. liotment to sand wharf. liotment to purchasing office (for inspector). liotment to ongineer stables (forage, etc., for 9 months). orage for July, August, and September. liotment to U Street stables (new roof). mount of stock on hand. Total.  Contingent and miscellaneous expenses, District of Colum	rious station	, motor tru	. 1,457.33 . 4.50 . 3.23 . 1.54 . 10.00 . 82.39 . 18.31 . 2.90 . 1,339.22 . 20.79 . 5,600.00
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Is calianeous time and material used in shop on written orders for va ro rats share of purchase of harness.  as consumed in machine shop.  liotment to sand wharf.  liotment to purchasing office (for inspector).  liotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  liotment to U Street stables (new roof).  mount of stock on hand.  Total.  Contingent and miscellaneous expenses, District of Colum intendent of repairs.	rious station	, motor tru	1,487.33 530.93 4.50 3.23 1.84 10.00 52.89 18.81 2.90 1,339.22 20.79 5,800.00 ck, super-
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Is cellaneous time and material used in shop on written orders for varon the shop of harness aconsumed in machine shop.  Illotment to sand wharf.  Illotment to purchased office (for inspector).  Illotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  Illotment to U Street stables (new roof).  mount of stock on hand.  Total.  Contingent and miscellaneous expenses, District of Colum intendent of repairs.  uppropriation  ixpended.	rious station	, motor tru	1,487.33 - 4.50 - 3.22 - 1.50 - 1.81 - 1.83 - 2.90 - 1,339.22 - 5,500.00 - ck, super-
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Is callaneous time and material used in shop on written orders for var or rate share of purchase of harness.  as consumed in machine shop.  liotment to sand wharf.  liotment to purchasing office (for inspector).  liotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  liotment to U Street stables (new roof).  mount of stock on hand.  naxpended.  Total.  Contingent and miscellaneous expenses. District of Colum intendent of repairs.  uppropriation  ixpended.  Courts, District of Columbia, 1914, police court	nbia, 1914	, motor tru	1,487.33 530.93 4.50 3.23 1.35 1.36 1.38 1.39 2.90 20.79 5,800.00 ck, super-
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Iscalianeous time and material used in shop on written orders for va ro rats share of purchase of harness.  se consumed in machine shop.  liotment to sand wharf.  liotment to purchasing office (for inspector).  llotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  llotment to U Street stables (new roof).  mount of stock on hand.  maxpended.  Total.  Contingent and miscellaneous expenses. District of Colum intendent of repairs.  appropriation.  Expended.  Unexpended.  Unexpended.	nbia, 1914	, motor tru	1,487.33 530.93 4.50 8.23 1.54 10.00 18.31 2.90 1,339.22 20.79 5,800.00 ck, super-
otal amount of labor accounted for on written orders.  otal amount of material accounted for on written orders.  Is callaneous time and material used in shop on written orders for var or rate share of purchase of harness.  as consumed in machine shop.  liotment to sand wharf.  liotment to purchasing office (for inspector).  liotment to engineer stables (forage, etc., for 9 months).  orage for July, August, and September.  liotment to U Street stables (new roof).  mount of stock on hand.  naxpended.  Total.  Contingent and miscellaneous expenses. District of Colum intendent of repairs.  uppropriation  ixpended.  Courts, District of Columbia, 1914, police court	nbia, 1914	, motor tru	1,487,33 530,93 - 4,50 - 3,22 - 1,54 - 10,00 - 18,31 - 2,90 - 1,339,22 - 20,79 - 5,800,00 - 6k, super- - 4480,00 - 479,74 - 26

### [Appropriation, \$100,000.]

Class of work.	Labor.	Material.	Contract.	Total.
Abbot School, No. 27:				
( arpentering	\$47.97	\$105.31		\$153.2
Tinning	35.90	20.48		56.3
Plumbing	1.63 17.84	.01 10.86		1.6 28.7
Painting and glazing	17.04			
Total	103.34	136.66		240.0
Adams School, No. 65:				
Carpentering	65.77	100.16		165.9
Tinning Heating	27.57	25.74 46.58	\$169.73	83.1 216.1
Phimbing	7.38	2.16	\$109.73	9.5
Painting and glazing.	15.19	8.85		24.0
Miscellaneous		.74		.7
Total	115.91	184.23	169.73	400.1
	110.01	109.20	100.73	
ddison School, No. 58:		100.00	1 1	-
(arpentering	94.59	190.80	· · · · · · ·	286.2 201. I
Tinning Heating	66.68	134.49	15.34	15.3
Phimhine	7.56	.61	10.04	8.1
Painting and glazing	12.94	5.51		18.4
Total	181.77	331, 41	15.34	528.5
mbush School, No. 79:				
(arpentering	98.47	25.16	1	123.6
( arpentering	23.81	17.23		41.0
Heating. Plumbing. Plumbing and glasing. Miscellaneous	l	12.97	243.12	256.0
Plumbing	17.50	1.58		19.0
Painting and glasing	131.19	35.64		166.8
Miscellaneous	• • • • • • • • • • • • • • • • • • • •	1.74		1.7
Total	270.97	94.32	243. 12	606.4
midon School, No. 42:				
(arrentering	188.60	159.97	1	348.8
Tinning	166.19	40.82		207.0
Plumbing	19.24	3.45		22.6
Painting and glazing	81.50	11.02		42.5
Miscellaneous	33.26 1.31	7.02 1.00		40.2 2.3
	1.31			
Total	440.10	223.28		663.3
rmstrong Manual Training School, No. 129:				
(arpentering		.17		
Tinning	36.00	12.00 11.70	<b></b> -	48.0
Plumbing	51.79	11.70		68.4 37.7
Steam fitting	20.93	16.84 49.66		49.6
Painting and glazing	27.73	10.08		37.8
				236.9
Total	136.45	100.45		200.1
rthur School, No. 70:			l i	
Carpentering	56.44	19.44		75.8 14.8
Tinning Heating	11.00	3.84	68.05	68.0
Plumbing.	4.37	.24		4.6
Painting and glazing.	22, 14	13.64		25.7
Total	93.95	37.16	68.05	199.1
enneker School No. 30:				
Carpentering	224.98	491.48	1 1	716.4
Carpentering. Tinning. Heating. Plumbing.	10.57	6.21		16.7
Heating.	4.31	87.55	28.91	120.7
Plumbing	16.06	.70 8.86	<b> </b>	16.7
Painting and glazing	15. 24	8.86		24.1
Gas engine	19. 13	10.29		29. 4 1. 0
,				
Total	290. 29	606.09	28, 91	925.7
•				_

Class of work.	Labor.	Material.	Contract.	Total.
Bell School, No. 78:				<del></del>
Carpentering. Tinning. Heating.	<b>\$5</b> 9.73	<b>\$2</b> 1.90	l	\$81.63
Tinning	140.47	175.01		816.36
Heating	· · · · · · · · · · · · · · · · · · ·	<b></b>	\$14.49	14.46
Plumbing	18.62	2.37		20.99
Plumbing. Painting and glazing.	7.56	6.96		14.52
Total	226.38	207.14	14.49	448.01
Bennings School, No. 48:				
Carpentering	117.04	19.86	l	136.90
Mindre	64.53	88.48	l	103.01
Plumbing. Painting and glazing. Steam fitting.	6.50	2.23		8. 73
Painting and glazing	63. 81	19.12		82.93
Steam fitting	4.38	- <b></b>		4.88
Total	256. 26	79.69		335.95
Berret School No. 66:				
Carpentering	9. 94	3.94	I I	13, 18
Tinning.	12. 25	6.76		19.01
Heating 1		7.75	78.35	86. 10
Plumbing	7.31	.03		7.34
Plumbing. Painting and glazing.	13. 56	4.08		17.64
Total	43.06	21.86	78.35	143. 27
	50.00	21.00	10.00	150- 21
Birney School, No. 127:				
Carpentering	1.50	.40	l I	1.90
Timning.	89.47	27. 92	[	117. 39
Heating	. <b></b>	<b></b>	5.81	5. 81
Plumbing .	8.50	1.34		9.84
Painting and glazing	12.63	5.83		18. 46
Painting and glasing	20.09	8.74	· · · · • • • • • •	23. 83
A. MCRIATIBOUS	2.50	1.74		4. 24
Total	134.69	40. (**	5. 81	181. 47
Distriction No. 50				
Blatz School, No. 50:	100 45		1 1	222. 93
Carpentering Tinning	108. 47 12. 07	114.46 .32	·····	12.39
Heating	2.60	1.47	15.50	19. 57
Plumbing	8.62	1.98		10.60
Painting and glazing	16. 82	4.45		21. 27
Painting and glasing.	9.00	5.56		14. 56
Total	157. 58	128. 24	15. 50	301.32
Blake School, No. 61:				
Carpentering.	35. 56	87.37	ı i	122, 93
Tinning	2.0K	.89		3.85
Tinning. Plumbing.	2.96 101.76	62.97		164, 73
Painting and glazing	20.93	11.65		82. 58
GTBG INF.	. 50	<b> </b>		. 50 1. 74
Miscellaneous	• • • • • • • • • • • • • • • • • • • •	1.74		1.74
Total.	161.71	164.62		326. 33
Blow School, No. 145:				
Carnenterine	15. 30	3, 27	1	18. 57
Tinning	5.75	2.59		8. 34
Carpentering. Timning. Heating.	0.10		13.95	13. 95
rumbing	17.81	1.40	1	19. 21
Painting and glasing	31. 21	14.96	[	46. 17
Motor. Miscellaneous	3. 37	.57		8.94
= Modification	10. 88	. 56		11.44
Total	84.32	23. 35	13. 95	121. 62
A. Bowen School, No. 109:				
- Servin School, 140. 108.		11. 32	39.60	50. 90
Heating.				24. 2
Plumbing.	20. 32	3.95		
nesting. Plumbing. Plunting and glasing.	13.00	6.47		19. 47
Plumbing.		8. 95 6. 47 18. 64		19. 47 83. 80

Class of work.	Labor.	Material.	Contract.	Total.
J. Bowen School, No. 123:				
Carnentering	<b>\$</b> 5.00	1	l	\$5.00
Carpentering	12.15	\$8.46		20.6
Plumbing. Painting and glazing.  Steam fitting.	1.75			1.7
Painting and glazing	11.57	13. 29		24.8
Steam fitting	7.03	. 66		7. 60
Miscellaneous	6. 25	1.12	<b></b>	7. 8
Total	43.75	23. 53		67. 2
adley School, No. 60:			<del>  </del>	
Plumbing	6.75	.45	l	7.9
Carnentering	88. 54	. 45 33. 75		7. <u>9</u> 122. 3
Tinning	10.31	8.34		12.6
Timing. Heating. Painting and glazing.			86.04	6.0
Painting and glazing	29.93	10.63	[	40.5
Miscellaneous.		1.00	·····	1.0
Total	135. 53	49.17	6.04	190.7
nt School, No. 46: .				
Carnentering	50. 14	38.84		88-98
	218.63	179.50	1	308. I
Timning. Heating. Plumbing. Painting and glaving Gas engine. Miscellaneous.		111.60	10.00	121.6
Plumbing.	45.94	4.18		50. 1
Painting and glazing	348.97	48.53	l	307. 5
Gas engine.	21.25	11.94	l	33.1
Miscellaneous.	1.41	.03		14
Total	686.34	394.62	10.00	1,090.9
gs School, No. 75: Sarpentering	43. 19	13. 13	1	58.2
inning	21.72	16.26		37.9
inning leating.	3 75	.33	47.12	S1. 2
humbing	21. 72 3. 75 25. 89	8.90	1 42	31.7
Painting and glazing	1.75	4.23		5.90
	96.30		47. 12	186.97
Totalhtwood School, No. 104:	80.30	42.85	47.13	190.34
arpentering	113.30	98.05	i i	206.15
inning	2.87	2.35		5.2
iming. lumbing	2.75	. 68		14
ainting and glazing	28.74	11.51		40.2
team fitting	125.67	12. 21		187.8
ainting and glazing	13. 19	6.48		19.6
Total	286. 52	126.28		412.80
rhtwood Park School, No. 151:			<del></del>	
Carpentering	5.56	.47		6.0
Tinning	26.28	12.39		38.67
Heating	<b>.</b> <u></u> <u></u> .	1.01		1.0
lumbing	26.55	8.85		30.4
Painting and glazing	12. 13 3. 38	5.16		17. <b>3</b> 7.00
· ·		3.69		
Total	73.90	26.57		100.47
kland School, No. 103:	***	912.00		
arpentering. 'inning.	119. 16	316. 33		Q5. C
inning	232. 13	839.06		571.9
Plumbing	7.00	. 25		7.2
Plumbing Painting and glazing team fitting.	11. 13	6.12		17. 2
Steam numg	27.41	23. 27 6. 73		50.65
Grading	7.50	0.73		14.20
Kiecellaneous		1.74		1.4
Total	404. 33	693. 52	<u> </u>	1,097.85
e School, No. 112:				
Arpentering	117. 13	163. 12		280.25
	14.26 2.75	7.35	<b> </b>	21.61
<u>rinning</u>	2.75	10.81	6.28	19.34
I'mn ing Heating			l	5. 37
rmning. Beating. Plumbing.	5.37			
ice School, No. 112: Carpentering. Tinning. Heating. Plumbing. Painting and glasing.	5.37 173.87	60.55		
Tmn mg. Heating. Plumbing. Painting. Panting. Ges engine.	5.37 173.87 11.64	4.40		16.13
Tim ing. Heating. Plumbing. Painting and glazing. Gas engine. Miscalianeous. Total.	5.37 173.87		6.28	234. 42 16. 13 12. 98

Class of work.	Labor.	Material.	Contract.	Total.
Bryan School, No. 155:				
Carpentering	\$28.44	84.06	l	882.5
Carpentering	50.93	19.89		70.8
Heating.	15.69	80.08		96.7
Plumbing	16.50	3.98		20.4
Painting and glazing	18.87	4.89		18.2
Plumbing Painting and glazing Gas engine Miscellaneous	17.48	9. 29 1. 74		26.7 1.7
Total	142.91	123.38		206. 2
ruchanan School, No. 96:				
Carpentering	20.50	7.49		27. 9
Tinning	42.87	31. 62		73.9
Heating			\$77.65	77.6
Plumbing. Painting and glasing.	12.68	1.96		14.6
Painting and glasing	200.57	31.34		281.9
Miscellaneous	5. 75	1.00		6.7
Total	281. 87	78. 41	77. 65	482.9
mker Hill Road School, No. 161:				
Carpentering.	13. 28 11. 34	1. 85 10. 89		15. 11 22. 2
Tinning.	38.87	10.89		22. 2 88. 8
Plumbing. Painting and glasing.	49.38	10.97		60. 8
	112.87	28.71		136. 5
Total	112.67	20.71		180.0
mville School, No. 91;	29.81	2.55	1	82.3
Carpentering. Tinning.	5.50	1.53		7.0
	4.88	1.00		4.8
Painting and glazing	6.38	1.17		7. 8
Steam fitting	46.89	17.08		68. 4
Painting and glasing. Steam fitting. Miscellaneous.	3.01	1.10		8.1
Total	95.97	22.48		118.40
siness High School, No. 144:				
Carpentering	121.62	56.31		177.90
Tinning	182.37	197.99		880.8
Plumbing	60.68	7. 79		68. 4
Painting and slaving	245.07	. 85 68. 20		. 81 318. 2
Heating. Painting and glazing Steam fitting.	264. 49	227. 80		491.7
Total	874. 23	558.44		1,432.67
rbery School, No. 58:				
Carpentering	60. 75 17. 38	179.85	[	240.60
Timning	17.38	9.61	<u></u>	26.9
Heating	1.43	104.89	131. 75	238.0
Plumbing Painting and glasing	12.01	5.88		17. 8
Miscellaneous	23.07 6.87	17. 20 3. 76		40. 2 10. 6
	121.51	321, 19	131.75	574. 4
Total	121.01	021.19	131.70	0/1. %
rdosa School, No. 148: Carpentering	18.00	1.22	1	14. 2
Timning	72	1	l· · · · · · · · · · · · · · · · · · ·	7.7
Heathar	8.44	3.91		7. 8
Plumbing	7.44	. 16		7. 60
Painting and glazing	25.08	24.20 2.79		49.2
Plumbing. Painting and glazing. Gas engine. Miscellaneous	16.64	2.79 1.74		19. 4 1. 7
	44 90			100.3
Total	66. 32	34.02		100.8
rdoss Manual Training School, No. 168:	7	1		7 1
Carpentering Painting and glazing	7.18	18.88	[	7. 1: 37. 8:
Steam fitting	19.44 7.90	1.62		9. 52
Total	34. 47	20.00		54, 47

Class of work.	Labor.	Material.	Contract.	Total.
Central High School, No. 43: Carpentering	\$438. 83 120. 20	\$325.03 130.24		\$762. 310.
Timing	179.79 42.44	8.57		831. 16.
Painting and claving	133. 28	69.61		202
Plumbing Painting and glasing. Steam fitting.	76. 24	42.92		119.
Miscellaneous		1.00		ī
Total	870, 58	572.87		1,442
	670.06	012.01		1, 142
hain Bridge Road School, No. 6: Carpentering	18.62	7.18		*
Tinning	5.50			Ĩ.
Tinning. Painting and glazing.	1.50	. 19		L
Total	25. 62	7.87		32
hevy Chase School, No. 113:				
Carpentering	7.94	2.36		10.
Tinning	12.59	4. 36 . 95	····	16 2
Painting and glasing	8.99	8.49	\$1.55	12
T similar and Browning				
Total	29. 52	11.16	1.55	42
onduit Road School, No. 25:		•••		20
Carpentering Painting and glazing	10.00 3.37	10.26 12.78		30. 16.
rameting and grazing				
Total	13.37	23.04		36
ongress Heights School, No. 111: Carpentering	272.38	124.65		397
man ing	41.54	18.47		55
Heating	1	2.73		2
Plumbing	20.18	l		20
Heating Plumbing Painting and glasing	410.95	95.70		506
Total	745.05	236.55		961
eveland School, No. 165:				
Carpentering	337.38	158.24	1	495
Carpentering. Tinning.	28.59	18.63		42
HeatingPlumbing			260.40	280
Plumbing	89.12	40.38		79 <b>38</b>
Painting and giazing	22.70	16.89		ī
Painting and glazing. Grading. Motor.	1. 13 3. 38		10.00	13
			<del>  </del>	
Total	432.30	229.14	270.40	931
F. Cook School, No. 30: Carpentering	88.03	8.59		96
Tinning	16.50	10.29		20
HeatingPlumbing		8.68	29, 45	38
Plumbing	22.39	4.30		26
Painting and glazing Gas angine	45.00	26.54		71 11
Gas engine	7.77	8.83	· · · · · · · · · · · · · · · · · · ·	15
M 19091/M1904B	14.62	.91		
Total	194.31	63. 20	29. 45	286
D. Cooke School, No. 154:	70.04	22.00		108
Carpentering	76.94	31.82 22.29		£00
Tinning	20.31 7.50	34.18		41
Plumbing	27.82	1. 25		29
Painting and glazing	14.07	5.37		19
Gas engine	18.01	9.63		27
Miscellaneous		1.00		1
Total	164. 65	105. 54		270
preoran School, No. 68:				
Carpentering	43.41	174.66		218
Tinning	25.91	19.67	<u></u>	46
Heating.		.89	2.68	3
Plumbing Painting	3. 25 11. 57	5.04		16
Grading	197.06		[:::::]	197
		<b></b>	<b> </b>	
Total	281, 20	199.76	2.63	483

Class of work.	Labor.	Material.	Contract.	Total.
anch School, No. 137:				
Corportering	\$5.31	\$5.76	l	\$11.07
Tinning.	41,87	76.11		117.49
Tinning. Heating. Plumbing.	41,87 5.75 12.78			117. 48 5. 75
Plumbing	12.75	6.37		19. 12
rainting and gazing	13. 13	2.87		15. 50
Steamntting	50.69	27.17	l	77.86
Miscellaneous		.74		.74
Total.	129.00	118. 52		247.52
nmell School, No. 167:			<del>  </del>	
Innine '	8, 62	9.35	l	17.97
leating			\$7.98	7.98
ambing	18. 46	3. 17		21.63
inting and glasing.	107.00	22.79		129.79
iting. mbing. nting and glasing. enginee	30.27	14.60		44. 87
Total	164, 35	49, 91	7.98	222, 24
ichool, No. 26:				
rnentering.	9.00	.96		9.98
ning	180.86	310.09		499.95
himbing	10.69	.86		11.55
ainting and glasing	20.73	12.39	·····	33, 12
teamfitting.	63.72	83.65		147.87
- <u>-</u>				
Total.	294.00	407.95		701.95
on School, No. 52:				
pentering	243. 39	100.32		343.71
	90.66	96.04	l	196.70
umbing	47.50	80.56	[	78.06
ainting and glasing	34. 78 19. 97	35.14	[	69.90 74.87
humbing	19.97	54.90		74.87
iscellaneous	35.00	5.84		40.84
Total	471.28	822.80		794.08
rood School, No. 152:			,	
erpentering	117.64	60.34	l	177.98
ning	41.94	24.72		66.66
ating		1.63	10.62	12.26
inting and glazing	9.81	5. 35		15. 16
Total	169.39	92.04	10.62	272.05
School, No. 120:				
Carnentérin e	5.03	2.05	l	7.08
eating	45. 29	8.04		53, 33
humbling.	4.88	. 16		5.04
ainting and glasing.	291.56	. 16 71. 26		362.82
ating. umbing. uinting and glacing. use engine	23.39	8.07		31.46
<b>-</b>				
Total.	370. 15	89.58		450.73
Total	370. 15	89. 58		450.73
em School, No. 90:				
inen School, No. 99:	42, 22	254, 32		296. 54
chan School, No. 99: Arpentering	42, 22 12, 50	254. 32 11. 85		296. 54 24. 35
glam School, No. 99: Carpentering	42, 22 12, 50 . 69	254, 32		296. 54 24. 35 . 69
ghas School, No. 99: Carpentering Tinning Heating Plumbing	42, 22 12, 50 . 69 1, 12	254. 32 11. 85		296, 54 24, 35 . 69 1, 12
hee School, No. 90: prentering	42. 22 12. 50 . 69 1. 12 13. 88	254. 32 11. 85		296, 54 24, 35 .69 1, 12 21, 48
hes School, No. 99: srpentering	42. 22 12. 50 . 69 1. 12 13. 88 . 93	254. 32 11. 85 7. 60		296. 54 24. 35 . 69 1. 12 21. 48 . 93
glass School, No. 99: Carpentering Tinning. Heating. Plumbing. Plumbing. Painting and glazing. Miscellaneous	42. 22 12. 50 . 69 1. 12 13. 88	254. 32 11. 85		296. 54 24. 35 . 69 1. 12 21. 48
ghas School, No. 99: Carpentering Timing Heating. Plambing. Plambing. Plambing. Trining and glaring Miscellamous  Total	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34	254. 32 11. 85 7. 60		296. 54 24. 35 .00 1. 12 21. 48 .93 345. 11
chas School, No. 99:  *arpentering	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34	254. 32 11. 85 7. 60 273. 77		296. 54 24. 35 .69 1. 12 21. 48 .93 345. 11
ghas School, No. 99: Carpentering. Finning. Heating. Plumbing. Plumbing. Plumbing. Total  Total  tern High School, No. 85:	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34	254. 32 11. 85 7. 60 273. 77		296, 54 24, 35 , 69 1, 12 21, 48 , 93 345, 11
glass School, No. 99: Carpentering. Finning. Heating. Plambing. Plambing. Total  tern High School, No. 85: Carpentering. Tinning. Heating.	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34 - 631. 78 20. 90 6. 50	254. 32 11. 85 7. 60 273. 77 357. 74 14. 49 2. 71		296. 54 24. 35 . 69 1. 12 21. 48 . 93 345. 11
rghas School, No. 99: Carpentering Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total  stern High School, No. 85: Carpentering. Tinning. Heating. Plumbing.	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34 - 631. 78 20. 90 6. 50 45. 13	254. 32 11. 85 7. 60 273. 77 357. 74 14. 49 3. 71 13. 14		296. 54 24. 35 . 69 1. 12 21. 48 . 93 345. 11 968. 52 35. 39 10. 21 58. 27
chas School, No. 99: - Arpentering	42, 22 12, 50 .09 1, 12 13, 88 .93 71, 34 -631, 78 20, 90 6, 50 45, 13 320, 43	254. 32 11. 85 7. 60 273. 77 357. 74 14. 49 3. 71 13. 14 80. 16		296. 54 24. 35 . 69 1. 12 21. 48 . 93 345. 11 968. 52 35. 39 10. 21 58. 27 400. 59
aghas School, No. 99: Carpentering. Tinning. Heating. Plambing. Plambing. Painting and glazing. Miscellaneous.  Total.  stern High School No. 85:	42. 22 12. 50 . 69 1. 12 13. 88 . 93 71. 34 - 631. 78 20. 90 6. 50 45. 13	254. 32 11. 85 7. 60 273. 77 357. 74 14. 49 3. 71 13. 14	272.00	296. 54 24. 35 . 69 1. 12 21. 48 . 93 345. 11 988. 52 35. 39 10. 21 58. 27

Carpentering	Eaton School, No. 180: Carpentering				
Carpentering	CarpenteringTinning				
Phumbing   9.74   1.03   10.	Tinning				<b>883.</b> C
Electring and glasting   13.31   2.45   500.36   63.				[]	6.7
Miscellanscotes   8. 60   15. 70   19.	Phumbing	9.74	1.03		
Miscellanscotes   8. 60   15. 70   19.	Heating	••••••			69.3
Miscellanscotes   8. 60   15. 70   19.	Painting and glasing				15.7
Total 108.26 34.99 60.36 222 224 235 66 54.07 241 241 252 252 255 245 241 252 255 245 255 245 255 245 255 245 255 245 255 245 255 245 255 245 255 245 255 245 255 245 255 25	Gae engine and motor				
March   School   No. 118	Miscellaneous	J. 95	15.75		19.7
Carpentering   287.66   54.07   241.   211.   211.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221.   221	Total	108.26	34.99	69.36	212.0
Trinning   135.28   20.96   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86   22.86	okington School, No. 116				
Heating	Cerpentering				
Phumbing	Tinning			l <u></u>	
Painting and glasting   10.50   10.31   32   32   32   32   32   33   33	Heating				
Total	Plumbing				
Total	Painting and guaring		10.81		28.
Total. 509.77 209.97 128.65 888.  Immonds Bohool, No. 1286: Carpentering. 7.94 2.76 10. Timing. 4.84 6.69 11. Fluming. 16.30 1.45 77 17. Falinting and glasting 10.81 6.47 17. Ges engine 25.01 81.29 56.  Total 64.90 48.66 113.  Total 15.00 1.99 18. Timing. 15.00 1.99 18. Fluming 15.00 1.99 18. Fluming 15.00 1.99 18. Fluming 15.00 1.99 18. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 15.50 1.06 2. Fluming 16.50 1.06 2. Fluming 17.75 8.02 269.25 664  Fluming 17.75 8.02 269.25 18. Fluming 17.75 8.02 269.25 18. Fluming 17.75 8.02 269.25 18. Fluming 17.75 8.02 269.25 18. Fluming 17.75 8.02 269.25 269.25 18. Fluming 17.75 8.02 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.25 269.	Gas engine				
Immords School, No. 138:	MISCRIBIOCOUS	• • • • • • • • • • •	1.00		L
Carpentering	Total	509.77	209.97	128.65	848.
Carpentering	tmonde School, No. 125:				
Timing. 4.84 6.69 111 Phumbing. 10.30 1.45 17. Painting and glasing. 10.81 6.47 17. Ges engine. 25.01 31.29 564  Total. 64.90 48.66 1113  mary School, No. 133: Carpentering. 15.00 1.99 16. Timing. 1.50 1.99 16. Timing. 1.50 1.99 16. Timing. 1.75 1. Painting and glasing 29.27 19.82 259.25 26. Grading. 23.38 6.35 66.  Total. 161.45 43.69 259.25 464  Arbrother School, No. 150: Carpentering. 17.75 8.92 269.25 464  Arbrother School, No. 150: 17.75 8.92 19.82  Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.06 2.11 9. Pumbing. 7.07 9.21 9.50 11. Grading. 7.12 4.57 11. Grading. 7.12 4.57 11. Total. 88.86 22.75 81.  Ilmore School, No. 92: Carpentering. 10.51 3.76 14.  Total. 20.92 122.08 1.01 43.  Total. 20.93 334.  Total. 20.93 35.69 43.11 71.  Thining. 93.90 20.93 334.  Total. 20.91 12.10 49.  Painting and glasing. 31.32 15.90 47.  Steam fitting. 65.13 24.98 90.  Miscellaneous. 25.50 1.75 4.  Total. 407.93 746.59 17.  Thining. 68.18 104.04 172.  Painting. 68.18 104.04 17	Carpentering				10.
Phumbing	Timing	4.84	6.69	l	11.
Total	Plumbing				17.
Total	Painting and glasing		6.47		17.
Carpentering	Gas engine	25.01	81.20		56.3
Carpentering	Total	64, 90	48.66		112.
Carpentering       15.00       1.99       18         Tinning       1.50       1.06       2         Plumbing       1.75       1.66       2         Pumbing       20.87       14.47       25         Steamfitting       29.27       19.82       259.25       308         Grading       32.38       33.38       66         Miscalaneous       59.68       6.35       66         Miscalaneous       59.68       6.35       66         Total       161.45       43.69       259.25       44         dirbrother School, No. 150       17.75       8.92       28         Tinning       9.50       2.44       11         Heating       9.50       2.44       11         Pumbing       7.06       2.11       9         Painting and glating       6.02       4.57       11         Grading       7.12       7.       12         Grading       7.12       7.       12         Grading       10.51       3.76       14         Grading       10.51       3.76       14         Total       58.56       22.75       51         Ilmore Scho					
Printing and glazing   1.75   1.75   25.87   14.47   25.88   25.88   29.27   19.82   259.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268	Corportering	15.00	1 00	i 1	16
Printing and glazing   1.75   1.75   25.87   14.47   25.88   25.88   29.27   19.82   259.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268.25   268	Minning	1 50			
Painting and glazing 20.87 14.47 19.82 259.25 208 Grading 23.38 0.35 68  Miscellaneous 59.68 0.35 68  Total 161.45 43.69 259.25 44  Airbrother School, No. 159:  Carpentering 17.75 8.92 26.  Thining 9.50 2.44 11.  Heating 7.06 2.11 9.  Painting and glazing 6.62 4.57 11.  Grading 7.12 7.  Grae engine 10.51 3.76 14.  Total 58.56 22.75 81.  Ilmore School, No. 92:  Carpentering 128.84 190.38 228.  Thining 151.44 16.62 6.62  Heating 51.44 16.62 6.62  Painting and glazing 8.80 4.43 13.  Total 209.21 221.08 1.01 43.  Fotal 209.21 24.89 90.  Heating 93.90 220.93 314.  Phumbing 93.90 220.93 314.  Phumbing 93.90 220.93 314.  Phumbing 93.90 220.93 314.  Phumbing 93.90 220.93 314.  Fotal 209.21 24.89 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heating 65.13 24.98 90.  Heat	Dhombine		1.00		ĩ.
Steamfitting	Painting and playing		14 47		
Stating	Steemfitting		19.82	250 25	
Miscellaneous   59, 68   6.35   68   6.35   68   7   7   7   7   7   7   7   7   7	Greding		10.00	~~~~	63.
Total 161. 45 43. 69 259. 25 464 sirbrother School, No. 159: Carpentering 17. 75 8. 92 26 Tinning 9. 50 2. 44 11 Heating 9. 50 2. 44 11 Heating 7. 06 2. 11 9 Painting and glaxing 6. 62 4. 57 11 Grading 7. 12 7. 12 7. 13 Grading 7. 12 7. 12 7. 14  Total 88. 86 22. 75 81  Ilmore School, No. 92: Carpentering 128. 84 199. 38 288 Tinning 81. 44 16. 62 68 Heating 7. 12 10. 11 Total 20. 13 65 20. 13  Total 20. 13 65 20. 13  Total 20. 13 65 20. 14  Total 20. 13 65 20. 14  Total 20. 13 65 20. 15  Total 20. 13 65 20. 15  Total 20. 13 65 20. 15  Tinning 8. 80 4. 43 13  Total 209. 21 221. 08 1. 01 431.  Exce School, No. 32: Carpentering 98. 80 42. 43 13  Thumbing 98. 80 42. 43 13  Phumbing 98. 80 42. 43 13  Phumbing 98. 80 42. 43 13  Total 20. 13 65 20. 38  Tinning 98. 90 220. 93 314  Phumbing 98. 18 15. 90 47  Steam fitting 65. 13 24. 98 90.  Miscellaneous 2. 50 1. 75 4.  Total 497. 93 746. 59 1. 744.  Tanklin School, No. 15: Carpentering 68. 18 104. 04 172  Painting and glasing 88. 104. 04 172  Painting and glasing 88. 18 104. 04 172  Painting and glasing 98. 176. 50 177  Steam fitting 17. 60 22. 55 40	Miscellensons		6.35		66.
Carpentering	•				
Carpentering.       17.75       8.92       2.44       11         Tinning.       9.50       2.44       11         Heating.       7.06       2.11       9.50         Phumbing.       7.08       2.11       9.50         Painting and glazing       6.62       4.57       11         Grading.       7.12       7.       7.         Gas engline       10.51       3.76       14         Total.       68.56       22.75       81         Ilmore School, No. 92:       22.75       81         Carpentering.       128.84       199.38       28.         Tinning.       51.44       16.62       6.         Heating.       1.01       1.       1.         Painting and glazing       20.13       .65       20.         Painting and glazing       8.80       4.43       13         Total       20.21       221.08       1.01       431         cos School, No. 32:       276.96       439.11       716.         Carpentering.       98.90       220.93       314.         Phumbing.       98.90       220.93       314.         Tinning.       98.90       220.93       3				200.20	
Thining	Erprother School, No. 198	17 75		1	Od .
Heating	Chr pentering				
Plumbing	Heating	9. 50			
Painting and glazing   6,62   4,57   11     Grading   7,12   7,12   7,12     Gas engine   10,51   3,76   14     Total   58,56   22,75   81     Ilmore School, No. 92:   128,84   199,38   228,   Tinning   10,14   16,62   68, 14     Phumbing   20,13   65   20, 10     Painting and glazing   20,13   65   20, 10     Painting and glazing   20,21   221,06   1,01     Total   209,21   221,06   1,01     Gas School, No. 32:   276,96   439,11   716, 10     Tinning   26,19   272, 272, 273, 274, 274, 274, 274, 274, 274, 274, 274	Physical	7.08			e.
Grading.         7. 12         7. 12         7. 12         7. 12         7. 12         7. 12         7. 12         7. 12         7. 14         7. 15         16. 51         3. 76         14. 14         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 62         16. 63         16. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10         17. 10	Painting and glaring				າເົ
Total   10.51   3.76   14	Grading		-0.		
Total.	Gee and na		8.76		
Ilmore School, No. 92:   Carpentering.					
Carpentering       128, 94       199, 38       228         Tinning       51, 44       16, 62       68         Heating       1, 01       1         Phimbing       20, 13       65       20         Painting and glaxing       8, 80       4, 43       13         Total       209, 21       221, 08       1, 01       431         cce School, No. 32:       276, 96       439, 11       716         Tinning       93, 90       220, 93       314         Phumbing       28, 12       43, 92       72         Painting and glaxing       31, 22       15, 90       47         Steam fitting       65, 13       24, 98       90         Miscellaneous       2, 50       1, 75       4         Total       497, 93       748, 59       1, 244         anklin School, No. 15:       Carpentering       61, 29       35, 69       96         Tinning       6, 53       5, 45       11         Phumbing       65, 13       10, 40       17         Painting and glasing       134, 05       43, 59       117         Steam fitting       17, 50       22, 55       40		08.00	22, 75		91.
Timing	Ilmore School, No. 92:		l	1	
Heating	Carpentering				
Plumbing.         20, 13         65         20           Painting and glaxing         8, 80         4, 43         13           Total         209, 21         221, 08         1, 01         431           cos School, No. 32:         276, 96         439, 11         716.           Tinning.         93, 90         220, 93         314.           Phumbing.         28, 12         43, 92         72.           Painting and glasing         31, 32         15, 90         47.           Steam fitting.         65, 13         24, 98         90.           Miscellaneous         2, 50         1, 75         4           Total.         497, 93         746, 59         1, 244.           anklin School, No. 15:         20         35, 69         96.           Tinning.         6, 53         5, 45         11.           Plumbing.         6, 53         5, 45         11.           Plumbing.         68, 18         104, 04         172.           Painting and glasing         134, 05         43, 59         117.           Steam fitting.         17, 50         22, 55         40.	Tinning	<b>51.44</b>	10.62		
Painting and glazing   8, 80   4, 43   13     Total   209.21   221.08   1.01   431.     Total   276.96   439.11   716.     Tinning   63.90   220.93   314.     Phumbing   28.12   43.92   72.     Painting and glazing   31.32   15.90   47.     Steam fitting   65.13   24.98   90.     Miscellameous   2.50   1.75   4.     Total   497.93   746.59   1,244.     Total   497.93   746.59   1,244.     Total   6.53   5.45   11.     Phumbing   68.18   104.04   172.     Painting and glazing   184.05   43.59   177.     Steam fitting   17.60   22.55   40.	Hesung		·····	1.01	
Total         209.21         221.08         1.01         431.           gree School, No. 82:         276.96         439.11         716.           Tinning.         63.90         220.93         314.           Phumbing.         28.12         43.92         72.           Painting and glasing         31.32         15.90         47.           Steam fitting.         65.13         24.98         90.           Miscellaneous         2.50         1.75         4           Total.         497.93         748.59         1,244.           vanklin School, No. 15:         61.29         35.69         96.           Carpentering         61.29         35.60         96.           Tinning.         65.13         5.45         11.           Plumbing.         68.18         104.04         172.           Painting and glasing         124.05         43.59         177.           Steam fitting.         17.60         22.55         40.	Printing				
ree School, No. 32:  Carpentering. 278. 96 439. 11 716. Tinning. 33. 90 220. 93 314. Phumbing 28. 12 43. 92 72. Painting and giazing 31. 32 15. 90 47. Steam fitting. 65. 13 24. 98 90. Miscellaneous 2.50 1. 75 4.  Total. 497. 93 748. 59 1, 244. anklin School, No. 15: Carpentering 61. 29 35. 69 96. Tinning. 6. 53 5. 45 11. Phumbing 68. 18 104. 04 172. Painting and glazing 134. 05 43. 59 177. Steam fitting. 17. 50 22. 55 40.	ranting and gazing	8.80	1. 10		13.
Carpentering     276.96     439.11     716.       Thining     93.90     220.93     314.       Plumbing     28.12     43.92     72.       Painting and giasing     31.32     15.90     47.       Steam fitting     65.13     24.98     90.       Miscellaneous     2.50     1.75     4.       Total     497.93     746.59     1,244.       anklin School, No. 15:     61.29     35.69     96.       Timing     6.53     5.45     11.       Phimbing     68.18     104.04     172.       Painting and glasing     134.05     43.59     177.       Steam fitting     17.50     22.55     40.	Total	209.21	221.08	1.01	431.
Tining	ros School, No. 82:				
Plumbing         28,12         43,92         72           Painting and glazing         31,32         15,90         47           Steam fitting         65,13         24,98         90           Miscellaneous         2,50         1,75         4           Total         497,93         746,59         1,244           anklin School, No. 15:         61,29         35,69         96           Carpentering         6,53         5,45         11           Phinning         68,18         104,04         172           Painting and glazing         134,05         43,59         177           Steam fitting         17,50         22,55         40	Carpentering	276.96	439.11		
Painting and glasting.       31.32       15.90       47.         Steam fitting.       65.13       24.98       90.         Miscellameous       2.50       1.75       4.         Total.       497.93       746.59       1,244.         anklin School, No. 15:       61.29       35.69       96.         Timing.       6.53       5.45       11.         Phumbing.       68.18       104.04       172.         Painting and glasing       134.05       43.59       177.         Steam fitting.       17.60       22.55       40.	Tinning				
Miscellaneous   2.50   1.75   4     Total   497.93   746.59   1,244     anklin School, No. 15:   61.29   35.69   96.     Timing   6.53   5.45   11     Plumbing   68.18   104.04   172     Painting and glasing   134.05   43.59   177.     Steam fitting   17.50   22.55   40.	Primbing				
Miscellaneous   2.50   1.75   4     Total   497.93   746.59   1,244     ank its School, No. 15:   61.29   35.69   96.     Timing   6.53   5.45   11     Plumbing   68.18   104.04   172     Painting and glasing   134.05   43.59   177.     Steam fitting   17.50   22.55   40.	Cteem String			·····	
anklin School, No. 15:  Carpentering	Miscellaneous				4
anklin School, No. 15:  Carpentering	Total	497.93	748.59		1,244.
Carpentering.         61.29         35.09         96.           Timing.         6.53         5.45         11.           Phumbing.         68.18         104.04         172.           Painting and glasing.         134.05         43.59         177.           Steam fitting.         17.50         22.55         40.					-,
Primbing   68.18   104.04   172.     Painting and glazing   134.05   43.59   177.     Steam fitting   17.50   22.55   40.	Carpentering	61.29	35.69	<u> </u>	96.1
Primbing   68.18   104.04   172.     Painting and glazing   134.05   43.59   177.     Steam fitting   17.50   22.55   40.	Timning	6. 53	5.45	J	11.
Painting and glazing     134.05     43.59     177.       Steam fitting     17.50     22.55     40.	Plumbing		104.04	l	172
Steam fitting	Painting and glasing	134.05	43.59	Jl	177.
Total 987.55 211.89 408	Steam fitting		22.55	·····	40.0
	Trade 1	287.55	211.29		498.

Class of work.	Labor.	Material.	Contract.	Total.
B. B. French School, No. 141:				-
Carpentering	<b>\$9.93</b>	\$24.98		<b>\$34.91</b>
Tinning	15.54	10.04		25. 58
Heating			\$16.28	16. 28
Plumbing. Painting and glasing. Gas engine.	2.75	. 18		2.99
Painting and glazing	.94	.56		1.50
Gas engine	9.76	2.61		12.87
Miscellaneous		1.00		1.00
Total.	38.92	39.37	16.28	94. 57
age School, No. 143:				
Carpentering	12.63	1.06	l	13.60
Tinning	53.88	53.85		107. 7
Heating	1		300.16	300.16
Plumbing. Painting and glazing Gas engnie.	2.06	l. <b></b>		2.00
Painting and glazing	12.63	5.39	l	18,02
Gas engnie	10.87	1.90		12.77
Miscellaneous		1.74		1.74
Total	92.07	63, 93	300, 16	456, 16
ales School, No. 36:				
Carpentering	48.41	84.61	1	133.02
Timning	11.38	9.00		20.35
Physhina	12.94	1.64		14.58
Plumbing. Painting and glazing. Steam fitting.	24.96	10.72		
Steam String	72.36	65.59		85. 68 187. 96
Miscellaneous	24.34	1.94		
				26. 26
Total	194.39	173.50		367. 80
Parmet School, No. 34:	1			
Carpentering	43.75	14.84	l	58. 59
Tinning.	434.81	339.53		774.34
Painting and glasing	27.48	16.35		43. 83
Carpentering. Tinning. Painting and glasing. Steam fitting.	15.97	59.72	194.00	269. 60
Total	522. 01	430. 44	194.00	1, 146. 45
Parfield School, No. 158:				
Carpentering. Tinning Heating	87.49	51.16		138.65
Tinning	81.40	16.00		47.40
Heating	283.33	84.08	562.00	929. 41
Painting and glazing	40. 19	13.70		53. 80
Gas engine	5.63	. 16		5. 79
Miscellaneous	2. 25	.22	•••••	2.47
Total	450. 29	165. 32	562.00	1, 177. 61
Garrison School, No. 76:				
Carpentering	25, 94	22, 16		48, 10
Tinning.	91.50	95.11		186. 61
Heating		l	11.54	11.54
Plumbing. Painting and glaising. Miscellaneous	5, 63	.34		8.97
Painting and glaising	24.38	15, 16		39.54
Miscellaneous	200	7.74		.74
	147.45	133.51	11.74	292, 50
Total	147.45	133.81	11.54	292.00
Giddings School, No. 63:	l .	i	i l	
Carpentering	27.88	18.70		46, 58
Carpentering. Tinning.	18.59	7.99		26.58
Hasting		15.81	25. 11	40.92
Plumbing	60.87	15. 25		76. 12
Plumbing. Painting and glazing.	17.75	15. 25 10. 78		28. 53
Total	125.09	68. 53	25.11	218. 71
Good Hope School, No. 73:				
Carpentering	2.00	2.25	ll	4. 25
Painting and glazing.	1.07	1. 27		2.36
		2.50		
Total	8.07	8.52		6, 59

Timing.	Cines of work.	Labor.	Material.	Contract.	Total.
Carpentering. \$322.06 \$47.07 \$371ming. \$45.00 \$150.6 61 Phumbing. \$47.07 \$30.41 \$351ming. \$45.00 \$150.6 61 Phumbing. \$22.75 \$30.41 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$11.00 \$351ming. \$45.00 \$351ming	Frant School, No. 41:				
Tining.	Carpentaring	\$329.08	847.07	l	\$376.15
Painting and glasting   22. 6	Tinning	45, 96	150.61		196.87
Painting and gasing   41.66   50.39   \$194.00		22.75	20.41		4.16
Steam fitting	Painting and claying	96.82	1 11 16		38.0
Total	Steam fitting	41.66		\$104.00	286.06
reenleaf School, No. 105: Carpentering. 228, 73 171, 59					
Carpentering   228, 73   171, 59   772   6, 96   181, 181   181, 182   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   181, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183   183, 183, 183, 183, 183, 183, 183, 183,	Total	466.27	279.67	194.00	980.14
Thining	reenleaf School, No. 105:	000 70	171 80		400.35
Heating	Ourpentering	A40- 10	171.09		14.6
Total. 530.51 292.64 30.54  arrison School, No. 84: Carpentering. 61.55 99.25 Tinning 18.00 .68 Plumbing 18.00 .68 Total. 18.02 192.64  aryse School, No. 107: Carpentering. 10.75 6.22  ayes School, No. 107: Carpentering 19.85 3.33 Thuning 19.86 1.30 Plumbing 19.86 1.30 Plumbing 19.86 1.60 All School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School Sc	Trackles	9.12	0.50		32.7
Total. 530.51 292.64 30.54  arrison School, No. 84: Carpentering. 61.56 99.25 Timing. 18.00 .88 Plumbing. 18.00 .88  Total. 18.02 18.02  Aves School, No. 107: Carpentering. 10.75 6.22  Aves School, No. 107: Carpentering. 10.76 19.20  Aves School, No. 33: Carpentering. 10.76 19.20  Aves School, No. 33: Carpentering. 10.76 19.20  Aves School, No. 107: Carpentering. 10.70 19.20  Aves School, No. 115: Carpentering. 10.70 19.20  Aves School, No. 115: Carpentering. 10.70 19.20  Aves School, No. 115: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School, No. 119: Carpentering. 10.70 19.20  Aves School,	Diam blue	2.10			
Total 530.51 292.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 30.54 297.64 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54 20.54	Pointing and cleans	104 10			61.9
Total. 530.51 292.64 30.54 arrison School, No. 84: Carpentering. 61.56 99.25 Tinning. 15.50 8.76 Plumbing. 15.00 .88  Total. 135.42 126.62  Ayes School, No. 107: Carpentering. 10.75 6.22 Thining. 10.75 6.23 Thining. 10.85 1.33 Thining. 10.86 Plumbing. 10	Painting and glazing	194. 18	02.44		946. si
Total. 530.51 292.64 30.54 arrison School, No. 84: Carpentering. 61.56 99.25 Tinning. 15.50 8.76 Plumbing. 15.00 .88  Total. 135.42 126.62  Ayes School, No. 107: Carpentering. 10.75 6.22 Thining. 10.75 6.23 Thining. 10.85 1.33 Thining. 10.86 Plumbing. 10	Gas engine		41.09		98.2
Carpentering	Miscellaneous	2.19	•••••		2.15
Carpentering	Total	530.51	292.64	30.54	851.6
Carpentering	arrison School, No. 84:				
Plumbing	Carpentering		99.26	J	160.8
Plumbing	Tinning		8.76	l	25.2
Total 135. 42 126. 62	Plumbing.	13.00	.08	1	13.0
Total 135. 42 126. 62	Painting and glasing.	44.36			62.8
Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Aprel   Apre					
Carpentering   10.75   6.23   1	Total	135.42	126.62		902.0
Carpentering   10.75   6.23   171nning   8.25   3.33   18eating   1.44   1.30   1.48   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55   1.55	aves School, No. 107:				
Tinning	Carpentering	10.75	6.23		16.9
Heating	Tinning	8, 25	3.33		11.5
Gas engme.       3.09         Miscellaneous       1.00         Total.       59.77       26.01         serry School, No. 33:       284.26       142.40         Carpentering.       41.75       20.56         Heating.       93.00         Plumbing.       14.48       2.78         Painting and glazing       236.58       89.21         Steam fitting.       17.05       3.94         Miscellaneous       3.41       3.41         Total.       574.12       262.30       93.00         Stoom fitting.       163.10       37.47       3.41         Total.       574.12       262.30       93.00         Stoom School, No. 115:       163.10       37.47       3.41         Tinning.       2.87       1.33       3.41         Heating.       12.34       4.93       6.82         Pumbing.       2.87       1.33       3.81         Pumbing.       15.99       95       95         Painting and glazing       45.55       19.53         Gas engine.       18.65       9.99         Miscellaneous       13.74       2.17         Total.       272.24       76.37	Heating	1.44	1.30		2.7
Gas engme.       3.09         Miscellaneous       1.00         Total.       59.77       26.01         serry School, No. 33:       284.26       142.40         Carpentering.       41.75       20.56         Heating.       93.00         Plumbing.       14.48       2.78         Painting and glazing       236.58       89.21         Steam fitting.       17.05       3.94         Miscellaneous       3.41       3.41         Total.       574.12       262.30       93.00         Stoom fitting.       163.10       37.47       3.41         Total.       574.12       262.30       93.00         Stoom School, No. 115:       163.10       37.47       3.41         Tinning.       2.87       1.33       3.41         Heating.       12.34       4.93       6.82         Pumbing.       2.87       1.33       3.81         Pumbing.       15.99       95       95         Painting and glazing       45.55       19.53         Gas engine.       18.65       9.99         Miscellaneous       13.74       2.17         Total.       272.24       76.37	Phymbing	19.86	1.85		21.7
Gas engme.       5.97       3.09         Miscellaneous       1.00         Total.       59.77       26.01         smry School, No. 33:       284.26       142.40         Carpentering.       41.75       20.56         Heating.       93.00         Plumbing.       14.48       2.78         Psinting and glazing       236.58       89.21         Steam fitting       17.05       3.94         Miscellaneous       3.41       3.41         Total       574.12       262.30       93.00         Stoom School, No. 115:       163.10       37.47       3.41         Total       2.87       1.33       3.41         Tinning       2.87       1.33       3.41         Heating       12.34       4.93       6.82         Plumbing       2.87       1.33       3.41         Flumbing       15.99       95       95         Painting and glazing       45.55       19.53       3.82         Inbbard School, No. 119:       38.68       17.90       19.53         Carpentering       38.68       17.90       17.21         Gas engine       10.15       4.7       4.7	Painting and glazing	13,50	8.61		22.1
Total	Gas engine				9.6
Total	Miscellaneous				1.0
Carpentering					
Carpentering.       264. 28       142. 40         Tinning.       41. 75       20. 56         Heating.       14. 48       2. 78         Plumbing.       236. 58       89. 21         Painting and glazing.       236. 58       89. 21         Steam fitting.       17. 05       3. 94         Miscellaneous.       574. 12       262. 30       93. 00         Ilton School, No. 115:       574. 12       262. 30       93. 00         Carpentering.       163. 10       87. 47       77         Tinning.       2. 87       1. 33       4. 93       6. 82         Plumbing.       15. 99       9. 55       9. 58       9. 99       9. 55       9. 99       9. 55       9. 99       9. 55       9. 99       9. 55       9. 99       9. 55       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99       9. 50       9. 99	Totai	• 59.77	28.01		85.7
Carpentering.       264. 25       102. 40         Tinning.       41. 75       20. 56         Heating.       93. 00         Plumbing.       14. 48       2. 78         Painting and glazing.       236. 58       89. 21         Steam fitting.       17. 05       3. 94         Miscellaneous       3. 41       3. 41         Total.       574. 12       262. 30       93. 00         Steam fitting.       163. 10       87. 47       77         Tinning.       2. 87       1. 33       4. 93       6. 82         Plumbing.       15. 99       9. 55       1. 23       4. 4. 93       6. 82         Plumbing.       15. 99       9. 55       99       9. 55       1. 30       6. 82         Painting and glazing.       18. 65       9. 99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99       99	anry School, No. 33:			1 1	
Thining		264.26	142.40	1	406.0
Total 574. 12 262. 30 93. 00  Riton School, No. 115: Carpentering 163. 10 37. 47 Tinning 2. 87 1. 33 Heating 12. 34 4. 93 6. 82 Plumbing 15. 99 95 Painting and glasing 45. 55 19. 53 Gas engine 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total 272. 24 76. 37 6. 82  ubbard School, No. 119: Carpentering 38. 68 17. 90 Tinning 13. 22 377. 23 Plumbing 50 Gas engine 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 1. 10  Total 89. 11 413. 81  yde School, No. 147: Carpentering 13. 50 5. 20 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 178. 93 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 95 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinnin	Tinning.	41.75	20.56		62.1
Total. 574. 12 262. 30 93. 00  fiton School, No. 115: Carpentering. 163. 10 87. 47 Tinning. 2. 87 1. 33 Heating. 12. 34 4. 93 6. 82 Plumbing 45. 55 19. 53 Gas engine. 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total. 272. 24 76. 37 6. 82  ubbard School, No. 119: Carpentering. 38. 68 17. 90 Tinning. 13. 22 377. 23 Plumbing. 15. 90 Tinning. 16. 15. 16. 16. 16. 16. 16. 16. 16. 16. 16. 16	Heating			93.00	98.0
Total. 574. 12 262. 30 93. 00  Riton School, No. 115: Carpentering. 163. 10 87. 47 Tinning. 2. 87 1. 33 Heating. 12. 34 4. 93 6. 82 Plumbing 15. 99 95 Painting and glasing 46. 55 19. 53 Gas engine. 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total 272. 24 76. 37 6. 82  Abbard School, No. 119: Carpentering. 38. 68 17. 90 Tinning. 13. 22 377. 23 Plumbing. 13. 22 377. 23 Plumbing. 13. 22 377. 23 Plumbing. 14. 22 377. 23 Plumbing. 15. 90 Tinning. 16. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 100  Total 89. 11 413. 81  yde School, No. 147: Carpentering. 13. 50 5. 20 Tinning. 57. 84 178. 93 Heating 2. 88 21. 83	Plumbing	14.48	2.78		17.2
Total 574. 12 262. 30 93. 00  Riton School, No. 115: Carpentering 163. 10 37. 47 Tinning 2. 87 1. 33 Heating 12. 34 4. 93 6. 82 Plumbing 15. 99 95 Painting and glasing 45. 55 19. 53 Gas engine 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total 272. 24 76. 37 6. 82  ubbard School, No. 119: Carpentering 38. 68 17. 90 Tinning 13. 22 377. 23 Plumbing 50 Gas engine 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 1. 10  Total 89. 11 413. 81  yde School, No. 147: Carpentering 13. 50 5. 20 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 178. 93 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 95 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinnin	Painting and glazing	236, 58	89. 21		826.7
Total. 574. 12 262. 30 93. 00  Riton School, No. 115: Carpentering. 163. 10 87. 47 Tinning. 2. 87 1. 33 Heating. 12. 34 4. 93 6. 82 Plumbing 15. 99 95 Painting and glasing 46. 55 19. 53 Gas engine. 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total 272. 24 76. 37 6. 82  Abbard School, No. 119: Carpentering. 38. 68 17. 90 Tinning. 13. 22 377. 23 Plumbing. 13. 22 377. 23 Plumbing. 13. 22 377. 23 Plumbing. 14. 22 377. 23 Plumbing. 15. 90 Tinning. 16. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 100  Total 89. 11 413. 81  yde School, No. 147: Carpentering. 13. 50 5. 20 Tinning. 57. 84 178. 93 Heating 2. 88 21. 83	Steam fitting	17.05	3.94		20.9
Total 574. 12 262. 30 93. 00  Riton School, No. 115: Carpentering 163. 10 37. 47 Tinning 2. 87 1. 33 Heating 12. 34 4. 93 6. 82 Plumbing 15. 99 95 Painting and glasing 45. 55 19. 53 Gas engine 18. 65 9. 99 Miscellaneous 13. 74 2. 17  Total 272. 24 76. 37 6. 82  ubbard School, No. 119: Carpentering 38. 68 17. 90 Tinning 13. 22 377. 23 Plumbing 50 Gas engine 10. 15 47 Miscellaneous 10. 15 47 Miscellaneous 10. 15 1. 10  Total 89. 11 413. 81  yde School, No. 147: Carpentering 13. 50 5. 20 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 15. 84 178. 93 Tinning 178. 93 Tinning 178. 93 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 95 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinning 178. 94 Tinnin	Miscellaneous		8.41		14
Riton School, No. 115:   Carpentering.			000 00	m m	
Carpentering     163. 10     37. 47       Tinning     2. 87     1. 33       Heating     12. 34     4. 93     6. 82       Plumbing     15. 99     95       Painting and glasing     45. 55     19. 53       Gas engine     18. 65     9. 99       Miscellaneous     13. 74     2. 17       Total     272. 24     76. 37     6. 82       ubbard School, No. 119:     272. 24     76. 37     6. 82       Carpentering     38. 68     17. 90     17. 90       Tinning     13. 22     377. 23     57. 23       Plumbing     50     17. 21     68. 9. 11     18. 15     47       Miscellaneous     10. 15     .47     18. 16     18. 16       Total     89. 11     413. 81     19. 16       yde School, No. 147:     28. 21. 83     21. 83     21. 83		574.12	202.30	93.00	929. 4
Tining       2.87       1.33       4.93       6.82         Heating       15.99       95       6.82         Painting and glazing       45.55       19.53         Gas engine       18.65       9.99         Miscellaneous       13.74       2.17         Total       272.24       76.37       6.82         inbbard School, No. 119:       38.68       17.90         Carpentering       13.22       377.23         Plumbing       5.0       17.21         Gas engine       10.15       .47         Miscellaneous       1.00       1.00         Total       89.11       413.81       413.81         Carpentering       13.50       5.20       5.20         Tinning       57.84       178.93       57.84       178.93         Heating       2.88       21.83       21.83	fiton School, No. 115:	162 10	97 47	} I	200.5
Miscellaneous   13. 74   2. 17	Charles				4.2
Miscellaneous   13, 74   2, 17	Tracting	2.8/			
Miscellaneous   13. 74   2. 17	Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Ma	12.84	F 72	0.82	3L 0
Miscellaneous   13. 74   2. 17	Polestin and decide	15. 99	10.95	<b> </b>	10.9
Miscellaneous   13. 74   2. 17	Painting and glazing	50.55	78.93	<b>-</b>	65.0
Total	Gas engine	18.65	8.99		28.6
Description	Miscellaneous	13.74	2.17		,15.0
Carpentering     38, 68     17, 90       Tinning     13, 22     377, 23       Plumbing     50       Painting and glassing     26, 56     17, 21       Gas engine     10, 15     47       Miscellaneous     1, 00       Total     89, 11     413, 81       yde School, No. 147:     2       Carpentering     13, 50     5, 20       Tinning     57, 84     178, 93       Heating     2, 88     21, 83	Total.	272. 24	76.37	6, 82	355. 4
Carpentering     38, 68     17, 90       Tinning     13, 22     377, 23       Plumbing     50       Painting and giasting     20, 56     17, 21       Gas engine     10, 15     47       Miscellaneous     1, 00       Total     89, 11     413, 81       yde School, No. 147:     30     30       Carpentering     13, 50     5, 20       Tinning     57, 84     178, 93       Heating     2, 88     21, 83	abbard School, No. 119:				
Tining   12, 22   377, 23   57, 24   57, 24   57, 24   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25   57, 25	Carpentering			<b>.</b>	56.5
Plumbing	Thinks	13 22	377. 23	J	200.4
Miscellaneous   1.00	Plumbing.	. 50			.5
Miscellaneous   1.00	Painting and glasing	26, 56	17. 21	l	43.7
Miscellaneous	Gas engine		.47		10. 6
rde School, No. 147:  Carpentering	Miscellaneous		1.00		1.0
rde School, No. 147:  Carpentering	Total	89. 11	413. 81		503.9
Carpentering         13.50         5.20           Tinning         57.84         178.93           Heating         2.88         21.83					
Tinning	Yue ocuout, No. 147;	10 50		: 1	10 =
Heating 2.88 21.83	Carpentering		5.20		18.7
Heating   2,88   21,83	Tuning	57.84	1/8.93	j	236. 7
Pulmoing   7.88   1.19	Hickling	2.88		<u></u>	24.7
Painting and glazing 34. 38 53. 95	Plumbing	7. 88	1. 19	<del>-</del>	9.0
Gas engine	Painting and glazing	34. 38	[ 53.95		88.3
	Gas engine	34. 55	21.65		56. 9
Total	Total	151, 03	282, 75		433.7

Class of work.	Labor.	Material.	Contract.	Total.
Jackson School, No. 69:		<b></b>		
Carpentering	\$166.04	\$292, 40		<b>8460. 4</b> 4
Tinning	10.03	9.78		19. 81
Heating Painting and glazing			\$174.38	174. 35
Painting and glazing	192.74	39. 63		232, 37
Miscellaneous	1. 87	.02		1.80
Total	372.68	841. 83	174.38	888. 86
Adams Cahaal No. 100				
fefferson School, No. 23:	916, 32	647.69		1,564.01
Carpentering Tinning	58, 95	72.04		130.99
Ventime	59, 25	82.19		91. 44
Piumbing Painting and glasing Steam fitting. Kiscellaneous	88.88	12.28		101. 10
Painting and playing	236, 26	44.80		281.00
Steem fitting	176.94	53.33	94.60	324. 87
Misselle wears	210.04	.06	<b>92.00</b>	.00
A.SCALELIOUE		.00		
Total	1, 536. 60	862. 39	94. 60	2, 493. 59
Johnson School, No. 96:				
Carnentering	28.69	16. 15		44.84
Tinning Heating	23.20	21.30		44. 50
Heating		2.87	116.25	119, 12
Plumbing	2.25	. 67		2.92
reating. Plumbing. Painting and glasing.	17.87	5.75		23, 62
Grading	6,00			6.00
Total	78, 10	46, 74	116.26	241. 09
Johnson School annex:		۰		
Carpentering	8.00	1.48		4. 48
Tinning		2.58		2. 58
Plumbing	8, 25			8. 25
Painting and glazing	9.44	8.89		13. 33
Total	15.69	7.96		23. 64
Jones School, No. 77:				
Carpentering	69, 19	98.00		167. 19
Tinning	.50			107. 10
**************************************		.77	17. 59	. 50 18. 36
Disconling	24, 43	8.12	11.05	29.55
Plumbing Painting and glazing Miscellaneous	18.82	8.68		27.50
Missellansons		1.00		1.00
MISCOLIALICOUS		1.00	•••••	1.00
Total	112.94	113.57	17.59	244. 10
Kenfiworth School, No. 128:	1			
Carpentering. Timing Heating Painting and glasing.	40.75	7.08		47, 83
Tinning	50.53	129. 22		179. 75
Heating	00		81.00	31.00
Painting and playing	13, 13	2.76	000	15. 89
Motor	1.50	.86		2.36
Total	105, 91	139, 92	31, 00	276, 83
			J. 30	2,5,6
Ketcham School, No. 149:		1	i	
Carpentering	56,66	92.38		149.04
Thomas	31.88	16.90		48.78
Heating		.78	57. 43	58. 21
Painting	8.00	8.53		11. 53
Gas engine	8. 47	5.79		14. 26
Total	106, 01	119.38	57. 43	281. 83
Lanedon Robool No. 109				******
Langdon School, No. 108: Tinning	1 70	I		
Tasking.	1.50			1.50
Heating.	82. 34	. 94		82.5
Painting and glazing	9.32	5. 85		15. 1
Motor Miscellaneous	2.24	. 52		2.70 1.74
Miscellaneous	` <b></b>	1.74		1.74
Total	45. 40	8. 35		53. 75

Class of work.	Labor.	Material.	Contract.	Total
Languton School, No. 122:				
Carpentering	\$67.50	\$25,93		981.4
Tinning	12, 25	1.24		16.40
Heating Plumbing Painting and glasing			\$515.23	515.20
Plumbing	7. 75	1.04		1.79
Painting and glazing	26, 74	18. 10		44.84
Gas engine	25, 94	11.00		44.84 36.94
Miscellaneous		1.74		1.74
Total	140. 18	62.05	515. <b>23</b>	717. 📽
Lenox School, No. 67: Carpentering. Tinning. Heating.				
Carpentering	47.72	27.99		75.71
Timning	4. 75	• • • • • • • • • • • • • • • • • • • •		4.75 27.05
Heating		. 31	26.74	72.00
Plumbing	2.63		• • • • • • • • • •	10
Plumbing Painting and glasing Miscellaneous	337. 11	55. 46	• • • • • • • • • •	302.57
Misoslianeous	15. 25	2.89	•••••	18.14
Total	407. 46	86.65	26.74	530. 86
Lincoln School, No. 18:				
Carpentering. Tinning	187. 14	66. 45		251.39
Tinning	55. 93	187. 36		243.29
Plumbing	23. 25	4.62		27.87
Painting and glasing	107. 51	24, 25		131.76
Steam fitting	262. 93	233. 28		496.21
Plumbing Painting and glasing Steam fitting. Grading.	13. 59			13.50
Miscellaneous	•••••	1.74		1.74
Total	650. 35	517.70		1, 108.05
Logan School, No. 90:				
Carpentering	44.03	6.51	[. <u> </u>	50.54
Timing	15. 87	14. 31		20.18
Heating		7, 52	82.07	80.59
Plumbing.	13. 82	1.84		15.66
Painting and glazing	13. 33	7. 01		20.34
Miscellaneous		1.00		1.00
Total	87. 05	38, 19	82.07	207. 31
	. 61.00	00. 19	82.07	24.6
Lovejoy School, No. 124:	100 10	133, 54	1	20.73
Carpentering	106. 18		• • • • • • • • • • •	30.61
Tinning	26.03	13.58		2.0
Heating.			22.40	i n
Plumoing	21.00	.80		91 K
Plumbing. Painting and giazing Grading. Gas angine	18.50	6.04		34.54 21.75
Grading	21. 75 22. 45			51.6
(426 engine				
Total	215. 91	185. 49	22.40	43.8
Ladlow School, No. 142:	•		1	
Carpenering Tinning Heating Plumbing	1.50	l <b></b>	l	1,50
Tinning	13. 25	4.48		17.73
Heating			46.50	46.50
Plumhine	4.87	.22		1.00
Painting and glazing	11.51	4.83		15.84
Gas engine	16. 15	9.08		25.23
Total	47. 28	18.11	46.50	111.99
M Garage Wigh Cahaol No. 99:				
M Street High School, No. 82:	76, 41	24, 42		100.83
Carpentering. Tinning.	29. 53	85. 46		64,90
Plumbing	4.88	2. 15		7.08
Painting and glaving	37. 52	14.32		51.84
Steam fitting	7.84	1.73		9.57
Painting and glazing. Steam fitting. Miscellaneous	2.63	2.31		4.94
	158, 81	80.39		259, 20
Total,	100.01	90.39		
M Street heating plant: Painting and glazing		ı	i	
Painting and glazing	3, 50	.75	l	12
Steam fitting	34.04	47.05		81.00
			ļ	
Total	87.54	47. 80		85.34

Thining.	Class of work.	Labor.	Material.	Contract.	Total.
Carpentering   \$312, 25   \$400, 74   \$77   Thaning   \$12, 15   \$2.55   \$117.67   12   Heating   \$0.06   10   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12   \$117.67   12	adison School, No. 71:				
Hesting	Carpentering	\$312.35			\$722.09 4.50
Painting and glazing   108.76   19	Tinning	2 10	2.30	\$117 K7	126.0
Painting and glazing   108.76   22.67   74   12   13   14   15   15   15   15   15   15   15	Plambing	9.06	1 19	4111.01	9. 2
Miscellaneous	Painting and glazing		22,67		126, 42
Magruder School, No. 62:   Carpentering	Miscellaneous		.74		.74
Carpentering	Total	435. 51	435. 97	117.57	989. 00
Carpentering	agruder School, No. 62:				
Tining	Carpentering			]	122.8
Printing and glazing	Tinning	2.15	8.23		8.8
Painting and glazing	Heating				139. 8
Manry School, No. 55:   Carpentering	Painting and slaving		4 08		1. 60 12. 90
Manry School, No. 55:   Carpentering	Miscellaneous.	4.50	1.00		5.50
Carpentering   197.41   342.45   55   55   56   56   56   56   56	Total	52, 18	96, 16	139. 81	288. 1
Carpentering   197.41   342.45   55   55   56   56   56   56   56	anry School, No. 55:				
Heating	Carpentering				539. 80
Plumbing	Tinning	28.94	26.46		55. 40
Miscellaneous   12.76   18.99   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.2	Heating			48.67	48. 67 9. 44
Miscellaneous   12.76   18.99   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.2	Painting and clasing	26.05	19.89		40.77
Miscellaneous   12.76   18.99   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.29   1.2	Gradine	118 28	2 71		120.90
Miscellaneous   9, 93   1, 29   1	Gas engine	12.76	13.99		26, 78
McCormick School, No. 16:   Carpentering.	Miscellaneous	9.93			11. 2
McCormick School, No. 16:   Carpentering	Total	399. 65	401.79	48.67	853. 11
Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carpentering   Carp					
Plainbing   Solution   Painting and glazing   Solution   Solutio	Comments of a	8 50	1 4 94		12.84
Total 63.13 24.03 5  McKinley Manual Training School, No. 130:  Carpentering. 259.45 103.09 30  Tinning. 122.21 45.27 110  Plumbing. 62.31 23.96 5  Painting and glazing. 193.07 25.81 27  Steam fitting. 50.87 45.17 5  Miscellaneous 57.93 5.81 1,00  Military Road School, No. 8:  Carpentering. 28.94 15.14 4  Tinning. 14.75 15.68 3  Plumbing. 14.75 15.68 3  Plumbing. 15.59 42 1 6  Total 102.83 36.07 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.80 14.55 7  Tinning. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.89 141.96 11  Monree School, No. 72:  Carpentering. 11.80 14.55 7  Tinning. 11.80 14.96 11  Monree School, No. 72:  Carpentering. 11.89 141.96 11  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpente	Plumbing		u. 04		. 50
Total 63.13 24.03 5  McKinley Manual Training School, No. 130:  Carpentering. 259.45 103.09 30  Tinning. 122.21 45.27 110  Plumbing. 62.31 23.96 5  Painting and glazing. 193.07 25.81 27  Steam fitting. 50.87 45.17 5  Miscellaneous 57.93 5.81 1,00  Military Road School, No. 8:  Carpentering. 28.94 15.14 4  Tinning. 14.75 15.68 3  Plumbing. 14.75 15.68 3  Plumbing. 15.59 42 1 6  Total 102.83 36.07 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.80 14.55 7  Tinning. 11.88 141.96 11  Monree School, No. 72:  Carpentering. 11.89 141.96 11  Monree School, No. 72:  Carpentering. 11.80 14.55 7  Tinning. 11.80 14.96 11  Monree School, No. 72:  Carpentering. 11.89 141.96 11  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpentering. 7  Monree School, No. 72:  Carpente	Painting and glazing		17.69		73. 82
McKinley Manual Training School, No. 130:   Carpentering.					87. 10
Tinning.   122 21 45. 77   16 Plumbling	fcKinley Manual Training School, No. 130:				
Plumbing	Carpentering	259. 45	103.09		362. 5
Total   687. 91 358. 13   1,00	Tinning.	122.21	45.27		167. 4
Total   687. 91 358. 13   1,00	Painting and claring	108.07	20.50		86. 17 275. 81
Total   687. 91 358. 13   1,00	Steem fitting	50.87	45.17		96.0
Total   687. 91 358. 13   1,00	Miscellaneous				57.90
Carpentering   22, 94   15, 14   15   15, 68   15   14   15   15, 68   15   14   15   15, 68   15   14   15   15, 68   15   14   15   15, 68   15   14   15   15   15   15   15   15			358, 13	<b></b>	1,046.0
Carpentering   28.94   15.14   4   Thining   14.75   15.68   5   5   15.14   14.75   15.68   5   15.14   14.75   15.68   5   15.14   15.68   5   15.14   15.68   15.14   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.68   15.	Citary Road School, No. 8:			<del> </del>	
Tining. 14.75 15.68 8 Plumbing 56.95 4.21 6 Plumbing 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.04 5.10 1.0	Carnen tering			l	44.06
Painting and giazing   38. 95   4. 21   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 04   1. 0	Tinning	14.75			80.42
Total         102.83         36.07         11           Monroe School, No. 72:         59.87         16.55         7           Carpentering         59.87         16.55         1           Tinning         11.88         141.96         11           Heating         2.83         3.96         1.16           Pumbing         2.63         17           Painting and glazing         46.30         24.57         2           Grading         16.00         1           Motor         6.19         07         1           Miscellaneous         1.74         1	Plumbing	55, 95	4. 21		60.10
Monree School, No. 72:         59.87         16.55         1           Carpentering.         11.88         141.96         11           Heasting.         2.88         3.98         1.16           Pumbing.         2.63         17           Painting and glazing         40.30         24.57         1           Grading.         16.00         1           Motor.         6.19         .07           Miscellaneous.         1.74	runting and glazing	8, 19	1.04	•••••	
Carpentering     59.87     16.55     7       Tinning     11.88     141.96     16       Heating     2.83     3.98     1.16       Plumbing     2.63     17       Painting and glazing     46.30     24.57     3       Grading     16.00     1       Motor     6.19     .07       Miscellaneous     1.74		102. 83	36.07		138.90
Heating   2,88   3,96   1,16     Plumbing   2,63   17     Painting and glazing   46,30   24,57   7     Grading   16,00   1     Motor   6,19   07     Miscellaneous   1,74	mouros school, No. 72:	E0 0**	10.00		76.42
Heating   2.88   3.96   1.16     Plumbing   2.63   17     Painting and glazing   46.30   24.57   7     Grading   16.00   1     Motor   6.19   07     Miscellaneous   1.74	Tinging	11 99	141 08		153. 8
Plumbing	Heating	1 200		1.16	8.0
##cellaneous 1.74	Plumbing	2.63	.17		2.8
##cellaneous 1.74	Painting and glazing	46.30	24. 57		70.8
##cellaneous 1.74	Grading	16.00	l		16.00 6.20
	Miscellaneous.	0. 19			1.74
TOTAL ACTION AND ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION ACTION		145.75	·	1 14	335. 9
Montgomery School, No. 140:		190.70	200.01	2. 10	
Carpentering	Chronicalna	70.04	90		80.3
Thereine   90.07   48.40   19	There	90.07			127.4
Beating 19.22	Beating	00.07	20. 27	19, 22	19. 2
Plumbing	Plumbing	8. 13			8.9
Painting and glazing	Painting and glazing	11.38	6,84		17. 7
Val engine	Ges angine	10.47	4.18		14.6
Macellaneous			. 174		1.74
Total	Macellaneous		1.74		

Class of work.	Labor.	Material.	Contract.	Total.
forgan School, No. 125:				
Carpentering	\$13.51	\$0.81		\$14.2
Tinning	8. 44	8.96		7.4
Vesting	1 0.75	6.94	\$27.43	44.15
Plumbing Painting and glasing	18, 32	8.34		21.00 52.00
Painting and glazing	28.14	23.94		
Grading	7.81	1		7.81
Gas engine	48.07	28. 62		76.00
Grading. Gas engine. Miscellaneous.		1.41	• • • • • • • • • • • • • • • • • • • •	1.4
Total	129.04	69.02	27. 43	225.4
Iorse School, No. 44:	20, 49	88. 45		108.9
Carpentering Tinning	13.75	3.19		16.9
Heating	10.10	0.15	24.80	24.8
Plumbing	22, 74	5, 25	<i>3</i> 1.00	27.0
Plumbing. Painting and glazing	44. 25	23.35		67.0
Gas engine	9.77	4.57		14.3
Ges engine		20,		14.0
Total	111.00	124. 81	24. 80	200.6
w Mott School, No. 153:				
Carpentering	11.50	5.40	J	16.9
Tinning	16.69	5.96		22.6
Heating	7.50	37.41		44.9
Pinmhing	20.31	6.47		26.7
Painting and glazing	10.75 16.90	1 5.85		16.0 21.0
Uas engine	16.90	4.17		21.6
Miscellaneous	~ 2. 19	. 13		2.2
Total	85. 84	65.39		151.2
iner Normal School, No. 169.				
Grading	274.50			274.5
rr School, No. 122:				
Carpentering	1.00	.84		1.3
Tinning.	1.43			1.7
Heating.	1.50	.30 6.20	295.66	301.8
Plumbing.	3, 25	8.39	250.00	11.6
Painting and glazing	6.50	2.69		9.1
TotalStreet Manual Training School, No. 172	12. 18	17.92	295.66	336.7
Discribing	33.63	8.74	i i	37.3
Plumbing	3.75			
Painting and glazing	1	2.99		6.74 .8
MESCELLALISOUS		.37		
Total	37.38	7.10		44.4
ark View Portable School:				
	17 41	2.20	1 1	19.6
Carpentering	17.41	12.31		21.8
Tinning	9.53	12, 31		1.9
Heating. Plumbing.	1.94			7.1
Flumving	6.56	. 56 5. 87		16.5
Painting and sleeing				
Painting and glasing	11.00			67.3
Total	11.00	20.94		04.0
Total	46. 44	20.94		
Total	18. 25	20.94 7.80		26.0
Total	46. 44	20.94 7.80 67.72		28.0 138.6
Total  atterson School, No. 93: Carpentering Tinning. Heating	18. 25 70. 90	20.94 7.80 67.72	76. 95	26.0 136.6 76.9
Total	18. 25 70. 90	20.94 7.80 67.72	76.96	26.00 136.00 76.90 9.60
Total	18. 25 70. 90	20.94 7.80 67.72		26.00 136.00 76.90 9.60
Painting and glasing.  Total.  atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Plumbing. Painting and glasing. Miscellaneous.	46. 44 18. 25 70. 90 8. 81 21. 82 3. 12	20.94 7.80 67.72 .82 14.17 2.19		26.00 138.6 76.9 9.6 35.9 5.3
Total.  atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total.	18. 25 70. 90	20.94 7.80 67.72 .82 14.17		26.00 138.6 76.9 9.6 35.9 5.3
Total	46. 44 18. 25 70. 90 8. 81 21. 82 3. 12 122. 90	20. 94 7. 80 67. 72 . 82 14. 17 2. 19 92. 70		26.0 138.6 76.9 9.6 35.9 5.3
Painting and glasing.  Total.  atterson School, No. 93: Carpentering. Tinning. Heating Plumbing. Painting and glasing. Miscellaneous  Total.  ayne School, No. 98: Carpentering.	8. 81 21. 82 3. 12 122. 90	20.94 7.80 67.72 		26.0 138.6 76.9 9.6 35.9 5.3 292.5
Painting and glasing.  Total.  Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total.  ayne School, No. 98: Carpentering. Tinning.	46. 44 18. 25 70. 90 8. 81 21. 82 3. 12 122. 90	20. 94 7. 80 67. 72 . 82 14. 17 2. 19 92. 70	76.96	26.0 136.6 76.9 9.6 35.9 5.3 292.5
Painting and glasing.  Total  Carpentering Tinning Heating Plumbing Painting and glazing Miscollaneous  Total  syne School, No. 98: Carpentering Tinning	8. 81 21. 82 3. 12 122. 90 231. 36 14. 38	20.94 7.80 67.72 .82 14.17 2.19 92.70 216.93 3.77		26.0 136.6 76.9 9.6 35.9 5.3 292.5 448.3 18.1 133.9
Painting and glasing.  Total.  atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Painting and glasing. Miscellaneous.  Total.  ayne School, No. 98: Carpentering. Tinning. Heating. Heating. Plumbing.	18. 25 70. 90 8. 81 21. 82 3. 12 122. 90 231. 36 14. 38	20.94 7.80 67.72 .82 14.17 2.19 92.70 216.93 3.77	76.96	26.0 136.6 76.9 9.6 35.9 5.3 292.5 448.3 18.1 33.9 22.7
Painting and glasing.  Total.  atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Painting and glasing. Miscellaneous.  Total.  ayne School, No. 98: Carpentering. Tinning. Heating. Heating. Plumbing.	18. 25 70. 90 8. 81 21. 82 3. 12 122. 90 231. 36 14. 38	20.94 7.80 67.72 .82 14.17 2.19 92.70 216.93 3.77 5.48	76.96	26.00 136.6 76.9 9.6 35.99 5.3 292.8 448.2 18.11 33.9 22.7
Painting and glasing.  Total.  atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Painting and glasing. Miscellaneous.  Total.  ayna School, No. 98: Carpentering. Tinning. Heating. Plumbing. Plumbing. Painting and glazing. Gas engine. Gas engine.	46. 44  18. 25 70. 90  8. 81 21. 82 3. 12  122. 90  231. 36 14. 38  17. 25 14. 06 20. 39	20. 94  7. 80 67. 72  82 14. 17 2. 19 92. 70  216. 93 3. 77  5. 48 16. 94 4. 39	76.96	26.0 138.6 76.9 9.6 23.9 5.3 292.8 448.2 18.11 33.9 22.7 31.0
Painting and glasing.  Total atterson School, No. 93: Carpentering Tinning. Heating. Plumbing. Painting and glasing. Miscellaneous.  Total ayne School, No. 98: Carpentering. Tinning. Heating. Heating. Plumbing.	46. 44  18. 25 70. 90  8. 81 21. 82 3. 12  122. 90  231. 36 14. 38  17. 25 14. 06 20. 39	20. 94  7. 80 67. 72  82 14. 17 2. 19 92. 70  216. 93 3. 77  5. 48 16. 94 4. 39	76.96	26. 0 126. 6 78. 9 9. 6 25. 9 292. 5 448. 2 18. 11 33. 9 22. 7 31. 0 24. 7
Painting and glasing.  Total atterson School, No. 93: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total ayne School, No. 98: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Painting and glazing.	18. 25 70. 90 8. 81 21. 82 3. 12 122. 90 231. 36 14. 38	20.94 7.80 67.72 .82 14.17 2.19 92.70 216.93 3.77 5.48	76.96	28. 00 128. 65 76. 92 9. 65 28. 99 6. 31 292. 55 18. 11 33. 97 22. 77 21. 00 24. 77 21. 00

Class of work.	Labor.	Material.	Contract.	Total.
Peabody School, No. 31:				
Carpentering	8772.12	\$238.93	l	\$1,011.06
	11.94	\$238.93 7.36		19.30
Plumbing	34. 45	20.78		55. 23
Plumbing. Painting and glazing. Steam fitting. Miscellaneous.	61.00	35. 88		96.89
Steam fitting	79. 72	18. 25	\$190.40	288. 37
Miscellaneous	5. 66	1.00	[]	6. 60
Total	964. 89	322.20	190. 40	1,477.49
Petworth School, No. 131:				
Carpentering	40.56	18.63		59. 19
Tinning	41.51	42.88	. <b></b>	84.39
Heating		3.20	341.00	344. 20
Plumbing	15.06	7.67	[]	22.73
Plumbing Painting and glazing Grading	40.81	24.58		65.39
Ges engine	16.00 15.02	4. 26		16. 00 19. 28
•				
Total	168.96	101. 22	341.00	611. 19
Phelps School, No. 57: Carpentering	29. 32	9.36		38. 66
Heating	342.51	92.91		435. 42
Painting and glazing	83. 19	23.10		56. 29
Heating. Painting and glazing. Miscallaneous.		1.74		1.74
Total	405.02	127.11		532. 18
Phillips School, No. 81:				
Carpentering	70.65	136.20	l l	206. 85
Tinning	16.50	4. 45		20.95
Heating			36.99	36. 99
Plumbing	5. 25	. 66		5. 91
Heating. Plumbing. Painting and glazing.	6.69	5. 14		11. 83
Total	99.09	146. 45	36. 99	282. 53
Pieros School, No. 94: Carpentering				
Tinning.	17.06	3.00 1.30	<b></b>	20.06 2.24
Tracting	. 94 807. 15	76.05		883. 20
Pinmhing	3.18	2 32		5.50
Painting and glazing	8. 13	2. 32 3. 91		12.04
Heating. Plumbing. Painting and glazing. Miscellaneous		1.74		1.74
Total	836. 46	88.32		424.78
Bells Gebest No. 00.				
Polk School, No. 86: Carpentering.	205.54	70.86	1 1	276. 40
Tinning	18.56	7.62		26. 18
Heating	16.75	26.32	60. 13	103. 20
Plumbing	.75			. 75
Tinning Heating Plumbing Plumbing Painting and glazing	305.89	91.00		396. 86
Total	547. 49	195.80	60.13	803. 42
Powell School, No. 157:				
Carnentering	151.50	87.56	1 1	239, 00
Tinning	3.00	1 50		3.39
Tinning.  Heating. Plumbing. Painting and glazing. Grading.	10. 13	455.44	20.85	486. 42
Plumbing	15. 13	1.45	l	16.58
Painting and glazing	14. 19	5.51		19. 70
Traulug	6.50			6.50
	1.50	85.00	45.00	81.50
Gas engine	001.05	585.35	65.85	853. 14
Total	201.96	I		
Total				
Total	239, 20	157, 26		396. 46
Total	239, 20	157. 26 6. 44		
Total  Randall School, No. 28: Carpentering. Tinning. Hesting.	239. 20 4. 38 3. 81	6.44	2.87	10. 8: 11. 14
Total  Randall School, No. 28: Carpentering. Tinning. Eesting. Plambing	239. 20 4. 38 3. 81 87. 75	6. 44 4. 47 50. 15	2. 87	10. 8: 11. 14 1 <b>3</b> 7. 96
Total  Randall School, No. 28: Carpentering. Tinning. Heating. Flumbing. Panting and glasing.	239. 20 4. 38 3. 81	6. 44 4. 47 50. 15 17. 88	2.87	10. 8: 11. 11 1 <b>3</b> 7. 90 107. 5:
Total  Randall School, No. 28: Carpentering. Tinning. Hesting.	239. 20 4. 38 3. 81 87. 75	6. 44 4. 47 50. 15	2.87	396. 46 10. 83 11. 15 137. 90 107. 57

•	Labor.	Material.	Contract.	Total.
Randle Highlands School, No. 166:				
Carpentering. Tinning.	<b>\$</b> 8. 19	\$0.73		\$8.92
Tinning.	30. 97	15.18	l	46.15
Heating		l	\$8.99	8.90
Plumbing. Painting and glazing Grading Gas engine and motor	1.63	.01	l	1.64
Painting and glazing	2.00	.38		2.38
Grading	4.00	<b> </b>	ll	4.00
Gas engine and motor.	42.07	9.07		5L 14
<b>_</b>	88. 96	95 97	8.99	123, 22
Total	88.80	26.87	0.99	14.11
no School, No. 139:	10.40	۰	l i	
Carpentaring	<b>19. 43</b>	9.77 27.90	12.71	29.20 40.61
Heating Painting and glazing	7.50	3.55	12.71	90.01 11.05
Painting and glazing	7.00	a. 55		11.00
Total	26.93	41.22	12.71	80.86
servoir School, No. 110;	<del></del>			
Carpentering	25 50	9.50		25.00
Tinning	25.50 51.75	135.53		187. 28
Heating.	44.95	62.69		107.64
Dhambing	4.06	W2.05		4.11
Plumbing Painting and glazing	22.62	. 05 39. 51		6.13
a serrorming state of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the serv	22.02	39.01	• • • • • • • • • • • • • • • • • • • •	92.15
Total	148.88	247.28		396, 14
ss School, No. 146:			1	
Carpentering	7.81	3.89		11.70
Tinning	186. 14	111.67	<b>-</b>	297. 81
Tining Plumbing	6.51	.15		6.66
Painting and glazing	16.51	10.03	• • • • • • • • • • • • • • • • • • • •	26.54
Total	216.97	125.74		842.71
ston School, No. 22:		_		
Carpentering	63.32	19.67		82.99
Tinning	274. 75	170.92		445.67
Plumbing	16.08	2,12		11.39
Painting and glazing	154.13	41.54		196, 67
Steam fitting	241.16	295.19		596, 36
Steam fitting		1.00		1.00
Total	749.44	530.44		1,279.88
mmons School, No. 134:				
Carpentering	85.78	33.79	l	119.57
Plumbing	15. 37	2.57		17 04
Painting and glazing	15.68	6.68		17.94 22.36
Steam fitting	71.81	9.03		80.34
- j-				
Total	188.14	52.07		240, 21
		l		
ter School, No. 80:			1 1	2.39
ster School, No. 80:	2.00	.39		
Carpentering	2.00 53.91	174.89		226.80
Carpentering	53.91	174.89 .54	4.03	228.80 4.57
Carpentering	2.00 53.91 21.63	.39 174.89 .54 13.44	4.03	226.80 4.57 35.67
Carpentering	53.91 21.63	174.89 .54 13.44		4.57 35.67
Carpentering	53.91	174.89 .54		4.57
Carpentering Timning Heating Painting and glazing  Total  rt Slocum School, No. 11:	53. 91 21. 63 77. 54	174.89 .54 13.44 189.26		4. 57 35. 67 270. 83
Carpentering Tinning Heating Painting and glazing  Total  rt Slocum School, No. 11: Carpentering	53.91 21.63 77.54	174. 89 . 54 13. 44 189. 26		4.57 35.67
Carpentering Tinning Heating Painting and glazing  Total  rt Slocum School, No. 11: Carpentering	53. 91 21. 63 77. 54 12. 00 . 25	174. 89 . 54 13. 44 189. 26 13. 73 . 30		4, 57 35, 67 270, 83 25, 73
Carpentering Timning Heating Painting and glazing  Total  t Slocum School, No. 11: Carpentering	53.91 21.63 77.54	174. 89 . 54 13. 44 189. 26		4. 57 35. 67 270. 83 25. 73
Carpentering Timing. Heating. Painting and glazing Total  **rt Slocum School, No. 11: Carpentering. Heating. Painting and glazing	21. 63 77. 54 12. 00 . 25 6. 50	174. 89 .54 13. 44 189. 26 13. 78 . 30 2. 67		25. 73 .55 270. 83 25. 73 .55 9.17
Heating and glazing  Total  st Slocum School, No. 11: Carpentering. Heating. Painting and glazing	53. 91 21. 63 77. 54 12. 00 . 25	174. 89 . 54 13. 44 189. 26 13. 73 . 30		4, 57 35, 67 270, 83 25, 73
Carpentering Timing. Heating. Painting and glazing  Total.  rt Slocum School, No. 11: Carpentering. Heating. Painting and glazing	53. 91 21. 63 77. 54 12. 00 .25 6. 50 18. 75	174. 89 . 54 13. 44 189. 26 13. 78 . 30 2. 67 16. 70		25.73 270.83 25.73 25.73 9.17 35.45
Carpentering Timing. Heating. Painting and glazing  Total  rt Slocum School, No. 11: Carpentering. Heating. Painting and glazing	21. 63 77. 54 12. 00 .25 6. 50 18. 75	174. 89 . 54 13. 44 189. 26 13. 73 . 30 2. 67 16. 70		4. 57 35. 67 270. 83 25. 73 . 55 9. 17 35. 45
Carpentering Timing. Heating.  Painting and glazing  Total  St Slocum School, No. 11: Carpentering. Heating. Painting and glazing.  Total	53. 91 21. 63 77. 54 12. 00 .25 6. 50 18. 75	174. 89 . 54 13. 44 189. 26 13. 78 . 30 2. 67 16. 70	4.03	4.57 35.67 270.83 25.73 .55 9.17 35.45
Carpentering Timning Heating Painting and glazing  Total  t Slocum School, No. 11: Carpentering Heating Painting and glazing  Total  allwood School, No. 64: Carpentering Timning Heating Heating Heating	21. 63 77. 54 12. 00 .25 6. 50 18. 75 496. 58 13. 16	174. 89 .54 13. 44 189. 26 13. 78 .30 2. 67 16. 70 156. 28 8. 58		4.57 35.67 270.83 25.73 .55 9.17 35.45 662.86 21.74 83.45
Carpentering Timning. Heating. Painting and glazing  Total.  rt Slocum School, No. 11: Carpentering. Heating. Painting and glazing  Total.  allwood School, No. 64: Carpentering. Timning. Heating	53. 91 21. 63 77. 54 12. 00 .25 6. 50 18. 75 496. 58 13. 16	174. 89 .54 13. 44 189. 26 13. 73 .30 2. 67 16. 70 156. 28 8. 58	4.03	4. 57 35. 67 270. 83 25. 73 25. 73 9. 17 35. 45 662. 86 21. 74 83. 45 7. 54
Carpentering Timning Heating Painting and glazing  Total  **Slocum School, No. 11: Carpentering Heating Painting and glazing  Total  allwood School, No. 64: Carpentering Timning Heating Heating Theating Timning Heating	53. 91 21. 63 77. 54 12. 00 .25 6. 50 18. 75 496. 58 13. 16 7. 25 154. 94	174. 89 .54 13. 44 189. 26 13. 78 .30 2. 67 16. 70 156. 28 8. 58	4.03	4. 57 35. 67 270. 63 25. 73 9. 17 35. 45 662. 86 21. 74 83. 45 7. 64
Carpentering Timning Heating Painting and glazing  Total  t Slocum School, No. 11: Carpentering Heating Painting and glazing  Total	53. 91 21. 63 77. 54 12. 00 .25 6. 50 18. 75 496. 58 13. 16	174. 89 .54 13. 44 189. 26 13. 73 .30 2. 67 16. 70 156. 28 8. 58	4.03	4. 57 35. 67 270. 83 25. 73 25. 73 9. 17 35. 45 662. 86 21. 74 83. 45 7. 54

Class of work.	Labor.	Material.	Contract.	Total.
Stanton School, No. 138:				
Carpentering	\$106,06	\$43.52	l	\$149.58
Tinning.	17.84	7.68		25. 52
Heating	•••••	<u></u> <u>-</u> -	\$22.63	22.63
Plumbing	110.00	85.00		195.00
Painting and glazing	10.69	6.06		16.75
Heating Plumbing Painting and glazing Miscellaneous	16.06	1.14		17. 20
Total	260. 65	143.40	22. 63	426.68
H. Smothers School, No. 56:				
Carpentering	19.62	8,24	l	27.86
Tinning	15.50	2.99		18. 49
Painting and glazing	5.00	.77		5.77
Miscellaneous	. <b></b> .	1.74		18. 49 5. 77 1. 74
Total.	40. 12	13.74	<del>  </del>	53.86
<b> </b>		20.17		
Stevens School, No. 97:			1	
Carpentering	85.05	172,72		257.77
Tinning	47.61	94.81		142.42
Plumbing	16.81	2.28	·····	19.00
Painting and glazing	681.14	120.12		801.26
Plumbing Painting and glazing Steam fitting Miscellaneous	60, 10 21, 62	53.44 4.76		113.54 26.38
Total	912.33	448, 13		1,360,46
	#12.00	110.13		1,300.40
Summer School, No. 19:		١	l i	
Carpentering	9.00	2.31		11.81
Pointing and glacing	32.74 13.82	2.20 6.68	[·····]	34.94
Plumbing. Painting and glazing Steam fitting.	5.24	1.94		22.50
Miscellaneous	0. Za	1.00		7. 18 1. 00
		1.00		1.00
Total	60.80	16. 13		76.93
Syphax School, No. 126:			1	
Carpentering	161.69	114.02	l	275.71
Tinning	37.15	14.83		51.98
Plumbing	16.31	. 93		17.24
Plumbing. Painting and glazing Steam fitting. Miscellaneous.	190.59	68,96		259.55
Steam nitting	43.69	10.54		54.23
A.Boelianeous	•••••	1.74		1.74
Total	449. 43	211.02		660.45
Takoma School, No. 118:				
Tinning	8. <b>63</b>	2.70		11.83
Heating	1.94	. 28	2.09	4.81
Plumbing	4.07	. 38		4.45
Painting and glazing	13.60	4.86		18.55
Gas engine	18.39	12, 89		81.28
Total	46.72	21.11	2.09	69.92
<b>.</b>				
Theres selected No. 20:		t e		297.24
Taylor School, No. 88;	225.17	72 07		
Carpentering	225. 17 11. 84	72.07 2.85	1	14.60
Carpentering	225, 17 11, 84	2.85	11.78	14.69 13.60
Carpentering	11.84	2.85 1.82	11.78	13.60
Carpentering		2.85		14, 69 13, 60 28, 59 123, 68
Carpentering Tinning Heating Plumbing Painting and glaxing	11.84 16.31 94.53	2.85 1.82 12.28 29.10		13.60 28.59 123.68
Carpentering Tinning Heating Heating Piumbing Painting and glaxing Total	11.84 16.31	2.85 1.82 12.28		13.60 28.59
Carpentering Timing Beating Heating Plumbing Painting and glaxing  Total  Total	11. 84 16. 31 94. 53 347. 85	2. 85 1. 82 12. 28 29. 10		13. 60 28. 59 123. 63 477. 75
Carpentering Tinning Heating Plumbing Painting and glaxing  Total  Tenley School, No. 102: Carpentering	11. 84 16. 31 94. 53 347. 85	2, 85 1, 82 12, 28 29, 10 118, 12 59, 67		13. 60 28. 59 123. 63 477. 75
Carpentering Tinning Heating Plumbing Painting and glaxing  Total  Tenley School, No. 102: Carpentering Tinning	11. 84 16. 31 94. 53 347. 85 244. 40 11. 50	2.85 1.82 12.28 29.10 118.12 59.67 8.38		13.60 28.59 123.63 477.75 304.07 19.88
Carpentering Tinning Heating Heating Plumbing Painting and glaxing  Total  Tenley School, No. 102: Carpentering Tinning Plumbing	11. 84 16. 31 94. 53 347. 85 244. 40 11. 50 20. 18	2.85 1.82 12.28 29.10 118.12 59.67 8.38 4.76		13. 60 28. 59 123. 63 477. 75 304. 07 19. 88 24. 94
Carpentering Tinning Heating Plumbing Painting and glazing  Total  Tenley School, No. 102: Carpentering Tinning Plumbing	11. 84 16. 31 94. 53 347. 85 244. 40 11. 50 20. 18 166. 44	2.85 1.82 12.28 29.10 118.12 59.67 8.38 4.76 60.77		18. 60 28. 59 123. 63 477. 75 304. 07 19. 88 24. 94 227. 21
Carpentering Timing Heating Heating Plumbing Painting and glasing  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Plumbing Plumbing Steam fitting Steam fitting	11. 84 16. 31 94. 53 347. 85 244. 40 11. 50 20. 18 166. 44 28. 26	2. 85 1. 82 12. 28 29. 10 118. 12 59. 67 8. 38 4. 76 60. 77 5. 69	11.78	18. 60 28. 59 128. 68 477. 75 304. 07 19. 88 24. 94 227. 21 33. 95
Carpentering Tinning Heating Heating Plumbing Painting and glaxing  Total  Temley School, No. 102: Carpentering Tinning Plumbing	11. 84 16. 31 94. 53 347. 85 244. 40 11. 50 20. 18 166. 44	2.85 1.82 12.28 29.10 118.12 59.67 8.38 4.76 60.77		13. 60 28. 59 123. 63 477. 75 304. 07 19. 88 24. 94 227. 21

Class of work.	Labor.	Material.	Contract.	Total.
Thomson School, No. 155:				
Carnentering	\$21,06	\$1.66	l i	\$22.7
Carpentering. Tinning	4.87	1.45		6.2
Heating		1	\$109.20	100.1
Plumbing	24.31	.67	4100.20	24.9
Painting	14.76	6.27	l	21.6
Motor	1.50			1.5
Total	66, 50	10.05	109, 20	186.7
	00.30	10.05	109.20	100.7
Phrelkeld School, No. 14: Carpentering	3.00	167.64		170.6
Tinning	9.88	69.92		79.8
Heating	2.31	4.80		7.1
Phymhing	4.06	1	l	4.0
PlumbingPainting and glazing	5. 82	1.72		7.5
Total	25, 07	244.08		209.1
Foner School, No. 114: Carpentering.	2.69	.39		1.0
Carpentering	30.56	10.59	[·····]	47. 1
Tinning. Heating.	30.30	16.58		
Them line			11.47	11.6
Plumbing. Painting and glazing.		. 16		. 1
Canada	6.07	2.37		8.4
	15.82	8.25		24.0
Miscellaneous		. 20		.,,,
Total	55. 14	27.95	11.47	94.8
Towers School, No. 59:				
Carpentering	238.69	150.14	1 . 1	384. 57
Tinning	2.22	1.73		2.96
Phimbing	4.25	2.84		3.90 7.00
PlumbingPainting and glazing	155. 12	48.02		202.14
Miscellaneous	155. 12 41. 72	6.85		48.57
Total	442.00	209.58		661.58
į.			-	
Twining School, No. 45:	14.50	5.04	1 1	19.54
Tinning	10.28	8.49		18.77
Carpentering. Tinning Heating	10.20	0.10	3.64	1.6
Plumbing	2.38	1.27	0.04	ĩã
Painting and glazing	52.43	32.98		85.41
Ges engine	23.19	. 15		9. N
Wissolie noons	20.10	1.00		1.00
			-	
Total	102.78	48.93	3.64	151.8
Tyler School, No. 83: Carpentering	0.00	1	J	
Carpentering	9.06	2.44		11.50
Tinning.	14.36	4.55		18.91
Plumbing	1.50	.61	l	2.11 21.20
Painting and glazing	17.93	3.36		
Miscellaneous		. 74		۸.
	42.85	11.70	• • • • • • • • • • • • • • • • • • • •	84.55
Total			,	
Van Buren School, No. 87:		155.5	1	
Van Buren School, No. 87:	100.98	129. 22		200.39
Van Buren School, No. 87:		129. 22 266. 29		494.13
Van Buren School, No. 87:	100.98 217.84	266. 29	5. 12	49LU 11.3
Van Buren School, No. 87: Carpentering	100. 98 217. 84 60. 69	206. 29 15. 51	5.12	494.13 5.13 76.30
Van Buren School, No. 87: Carpentering	100.98 217.84	206. 29 15. 51 8. 03	5. 12	494.13 4.19 76.90 96.77
Van Buren School, No. 87:	100. 98 217. 84 60. 69	206. 29 15. 51	5.12	494.13 5.13 76.30
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing Painting and glaring Miscellaneous.  Total.	100. 98 217. 84 60. 69	206. 29 15. 51 8. 03	5.12	494.13 4.19 76.90 96.77
Van Buren School, No. 87: Carpentering	100. 98 217. 84 60. 69 18. 74	266. 29 15. 51 8. 03 1. 00 420. 05		694.13 5.19 76.20 26.77 1.00
Van Buren School, No. 87: Carpentering	100. 98 217. 84 60. 69 18. 74	266. 29 15. 51 8. 03 1. 00		491.13 5.13 78.20 36.77 1.00
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total.  Van Buren Annex, No. 38: Tinning.  Van Nees School. No. 150:	100. 98 217. 84 60. 69 18. 74 398. 25	206. 29 15. 51 8. 03 1. 00 420. 05		801.13 5.19 78.90 95.77 1.00 833.43
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total.  Van Buren Annex, No. 38: Tinning.  Van Nees School. No. 150:	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84	206. 29 15. 51 8. 03 1. 00 420. 05 15. 94		691.13 5.12 76.20 26.77 1.00 833.43 33.78
Van Buren School, No. 87: Carpentering	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84 3. 50 13. 19	266. 29 15. 51 8. 03 1. 00 420. 05 15. 94 8. 91 10. 74		881. G 33. 73 7. 41 883. G
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glaring. Miscellaneous.  Total.  Van Buren Annex, No. 38: Tinning. Van Ness School, No. 150: Carpentering. Tinning. Heating.	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84 3. 50 13. 19 3. 75	206. 29 15. 51 8. 03 1. 00 420. 05 15. 94 8. 91 10. 74 46. 50		891.13 78.90 95.77 1.00 893.42 33.78 7.41 95.93 95.93
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glazing. Miscellaneous.  Total  Van Buren Annex, No. 38: Tinning.  Van Ness School, No. 150: Carpentering. Tinning. Heating. Plumbing.	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84 3. 50 13. 19 3. 75 2. 44	15. 51 8. 03 1. 00 420. 05 15. 94 3. 91 10. 74 46. 50		891.13 78.90 95.77 1.00 893.42 33.78 7.41 95.93 95.93
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glazing Miscellaneous.  Total.  Van Buren Annex, No. 38: Tinning.  Van Nees School, No. 150: Carpentering. Tinning. Heating. Pumbing. Painting and glazing.	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84 3. 50 13. 19 3. 75 2. 44 14. 31	206. 29 15. 51 8. 03 1. 00 420. 05 15. 94 3. 91 10. 74 46. 50 .95 8. 32		89. 13 8.20 83. 7 1.00 833. 6 33. 7 7.41 22.83 50.85 3.29 22.63
Van Buren School, No. 87: Carpentering. Tinning. Heating. Plumbing. Painting and glaring. Miscellaneous.  Total.  Van Buren Annex, No. 38: Tinning. Van Ness School, No. 150: Carpentering. Tinning. Heating.	100. 98 217. 84 60. 69 18. 74 398. 25 17. 84 3. 50 13. 19 3. 75 2. 44	15. 51 8. 03 1. 00 420. 05 15. 94 3. 91 10. 74 46. 50		80.13 5.17 78.20 56.77 1.00 888.42 33.78 7.41 28.53 50.55

Tinning. 79. 11 282.86 38 38 Plumbing. 8.22 1.22 Plumbing. 8.22 1.22 Plumbing. 8.22 1.22 Plumbing. 8.22 1.22 1.22 Plumbing. 8.28 1.22 Plumbing. 8.28 1.22 1.22 Plumbing. 8.28 1.22 1.22 Plumbing. 8.28 1.22 1.23 822.25 1.25 Plumbing. 8.28 1.22 1.25 822.25 1.26 Plumbing. 18.23 7.46 1.22 Plumbing. 18.23 7.46 1.22 Plumbing. 18.24 1.25 1.26 1.26 1.26 Plumbing. 19.20 1.26 1.27 1.27 1.27 1.27 1.27 1.27 1.27 1.27	Class of work.	Labor.	Material.	Contract.	Total.
Carpentering   \$279, 42   \$2331, 50   \$277   \$271   \$282, 86   \$387   \$79, 11   \$282, 86   \$387   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287   \$287	allach School, No. 4:				
Tinning. 79.11 282.86 38 86 98 98 99 71 22 82 82 82 82 82 82 82 82 82 82 82 82	Carpentering.	\$279.42		l	\$572
Fruncing and glasting	Tinning		282. 86		361
Grading.    18.53   7.46   222.80   1,00	Plumbing		1.22		9
Grading.    18.53   7.46   222.80   1,00	Painting and glazing		35. 87		947
Grading.    18.53   7.46   222.80   1,00	Steam fitting.			\$222.80	383
Miscellaneous   18.53   7.46   22   27   7.65   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1.60   1	Grading	3.00			3
Total	Miscellaneous	18.53	7.46		25
bb School, No. 121: Carpentering					
Carpentering   134. 82   45. 62   16   Tinning   6. 47   1.78   2.48   18   Tinning   22.06   90.75   16   10   10   10   10   10   10   10		689.74	691.64	222.80	1,604
Tinning	abb School, No. 121:	104 00	45.00	ŀ	140
Heating	Tinning			• • • • • • • • • • • • • • • • • • • •	100
Total	Henting	0.47	1.78		9
Total	Discould be a			2.10	
Total	Plumbing				101
Total	rainting and glasing	37.53			49
Total	Gas engine	10.63	4.05		14
Seter School, No. 51:	Miscellaneous		1.00		1
Seter School, No. 51:	M-4-1	671 61	100.00	<del> </del>	
Carpentering	TOTAL	271.51	133. 63	2.48	407
Tinning	bster School, No. 51:				
Tinning	Carpentering			[l	308
Total 476.12 303.85 86  sightman School, No. 54: Carpentaring 14.07 86.80 10 Tinning 45.53 21.14 66 Heating 14.50 .03 22.47 3 Flumblug 9.60 7.15 11 Flumbing 9.60 7.15 11 Grading 41.31 4.31 4.31 4.31 Hiscellaneous 22.15 1.00 22.47 30  sitern High School, No. 117: Carpentaring 1533.52 463.47 99 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 15.70 30 119.78 29 Heating 15.70 30 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 7.75 3.00 119.78 29 Heating 81.39 13.79 9.18 Heating 81.39 13.79 9.18 Heating 81.39 13.79 9.18 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.01 3.54 11 Heating 9.00 3.30 3.31 Total 87.96 20.05 7.52 11 Heating 9.00 40 3.31 Total 632.32 339.72 3.41 97  Sson School, No. 89: Carpentaring 9.00 40 33.16 Total 632.32 339.72 3.41 97 Humbling 7.50 0.07 121.74 21 Humbling 7.50 0.07 121.74 21 Humbling 7.50 0.07 121.74 21 Humbling 7.50 0.07 121.74 21 Humbling 9.00 40 33.16 Total 632.32 339.72 3.41 97 Humbling 7.50 0.07 121.74 21 Humbling 7.75 1.91 212.74 21 Humbling 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40 33.16 Total 9.00 40	Tinning	85.54	170.14		255
Total 476.12 393.85 86  sightman School, No. 54: Carpentering. 14.07 86.80 10 Tinning. 45.53 21.14 66 Heating. 14.50 .93 22.47 3 Flumbling. 9.60 7.15 11 Grading. 9.60 7.15 11 Miscellaneous 22.15 1.00 22.47  Total 157.06 121.17 22.47 30  stern High School, No. 117: Carpentering. 153.52 463.47 99 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Hombling. 813.39 13.79 39 Hiscellaneous 15.75 37.52 52.75 99  Total 1,000.98 605.96 1,59  Total 1,000.98 605.96 1,59  set School, No. 163: Carpentering. 9.01 3.54 11 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.00 3.31 1.48 6 Heating. 9.00 4 33.16 7 Hombing. 9.00 4 33.16 7	Phymbing		5.70		22
Total 476.12 393.85 86  sightman School, No. 54: Carpentering. 14.07 86.80 10 Tinning. 45.53 21.14 66 Heating. 14.50 .93 22.47 3 Flumbling. 9.60 7.15 11 Grading. 9.60 7.15 11 Miscellaneous 22.15 1.00 22.47  Total 157.06 121.17 22.47 30  stern High School, No. 117: Carpentering. 153.52 463.47 99 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Heating. 7.75 3.00 119.78 29 Hombling. 813.39 13.79 39 Hiscellaneous 15.75 37.52 52.75 99  Total 1,000.98 605.96 1,59  Total 1,000.98 605.96 1,59  set School, No. 163: Carpentering. 9.01 3.54 11 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.01 3.54 1 Heating. 9.00 3.31 1.48 6 Heating. 9.00 4 33.16 7 Hombing. 9.00 4 33.16 7	Painting and glazing				104
ightman School, No. 54: Carpentering.  14.07 86.80 10 Trinning.  45.53 21.14 66 Heating.  14.50 .93 22.47 3 Flumbling.  9.60 7.15 11 Grading.  41.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.	Steam fitting	62. 28	27.13		80
ightman School, No. 54: Carpentering.  14.07 86.80 10 Trinning.  45.53 21.14 66 Heating.  14.50 .93 22.47 3 Flumbling.  9.60 7.15 11 Grading.  41.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.31 4.	Trebal	476 12	202 95		940
Carpentaring       14.07       86.90       10         Tinning       45.53       21.14       6         Heating       14.50       .03       22.47       3         Plumbing       9.81       4.15       1         Painting       9.81       4.15       1         Grading       41.31       41.31       4         Miscellaneous       22.15       1.00       2         Stern High School, No. 117:       22.47       30         carpentering       533.52       463.47       99         Tinning       175.00       119.78       29         Tinning       7.75       3.00       11         Plumbing       50.06       6.23       5         Painting and gissing       115.74       36.33       18         Beam fitting       81.39       13.79       9         Miscellaneous       37.52       52.75       9         Total       1,000.98       695.95       1,59         set School, No. 163:       12.50       .55       1         Carpentering       9.01       3.54       1         Heating       7.25       .90       20.05       7.52       1		170.12	040.00		OU4
Thinking   14.50   503   32.47   38     Plumbling   9.60   7.15   14     Plainting   9.81   4.15   1.15     Grading   41.31   4.15   1.15     Miscellaneous   22.15   1.00   22     Total   157.06   121.17   22.47   30     Stern High School, No. 117:     Carpentering   533.52   463.47   99     Tinning   175.00   119.78   229     Tinning   175.00   119.78   229     Plumbling and glasing   15.74   36.93   18.59     Steam fitting   81.39   13.79   98     Miscellaneous   37.62   52.75   99     Miscellaneous   37.62   52.75   99     Miscellaneous   37.62   52.75   99     Total   1,000.98   695.98   1,59     St School, No. 163:   12.50   5.55   1     Tinning   9.01   3.64   7.52     Plumbling   7.25   80   1.59     St School, No. 163:   2.50   2.50   2.50     Painting and glasing   6.88   3.68   1.59     Painting and glasing   45.40   46.22   99     Reating   9.01   3.44   1.48   1.59     Painting and glasing   45.40   46.22   99     Reating   7.50   6.07   7.52     Plumbling   7.50   90   40   3     Total   632.32   339.72   3.41   97     Beon School, No. 89:   20.64   33.16   12     Tinning   7.50   6.07   12     Plumbling   7.50   6.07   12	ightman School, No. 84:				
Thinling	Carpentaring				
Painting 9.81 4.15 1.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	Tinning	45.53	21.14		66
Painting 9.81 4.15 1.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	Heating	14.50	. 93	22.47	87
Panting Grading         9.81 4.15         1.85         1.86         1.31         4.15         1.86         1.31         4.15         1.86         1.31         4.15         1.31         4.15         1.31         4.15         1.31         4.15         1.31         4.15         1.31         4.15         1.31         1.31         1.32         1.31         1.31         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.32         1.33         1.32         1.33         1.32         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33         1.33<	Plumbing	9.69	7. 15		16
Grading.         41.31         4           Miscellaneous         22.15         1.00         2           Total.         157.06         121.17         22.47         30           stern High School, No. 117:         533.52         463.47         99           Tinning.         175.00         119.78         29           Heating.         7.75         3.00         1           Plumbling.         50.06         6.23         5           Painting and glasing.         115.74         36.93         18           Beam fitting.         81.39         13.79         9           Miscellaneous         37.52         52.75         9           Total.         1,000.98         695.95         1,59           set School, No. 163:         1         1,000.98         695.95         1,59           set School, No. 163:         1         2.50         .55         1           Carpentering.         9.01         3.54         1         1           Heating.         7.25         80         1         1           Painting and glasing.         6.83         3.63         1           Gas engine.         52.32         11.48         6 <td>Painting</td> <td>9. 81</td> <td>4.15</td> <td></td> <td>13</td>	Painting	9. 81	4.15		13
Miscellaneous   22.15   1.00   22   Total   157.06   121.17   22.47   30	Grading	41.31			41
Steam High School, No. 117:   Carpentering	Miscellaneous		1.00		22
Carpentering       533. 52       463. 47       99         Tinning       175. 00       119. 78       29         Heating       7. 75       3. 00       11         Plumbing       50. 06       6. 23       5         Painting and glasing       115. 74       36. 93       18         Steam fitting       81. 39       13. 79       9         Miscellaneous       37. 52       52. 75       9         Total       1,000. 98       695. 96       1,59         st School, No. 163:       12. 50       .55       1         Carpentering       9. 01       3. 54       1         Tinning       9. 01       3. 54       1         Heating       7. 25       80       7. 52         Plumbing       7. 25       80       7. 52         Plumbing       6. 88       3. 68       1         Gae engine       52. 32       11. 48       6         Total       87. 96       20. 05       7. 52       11         heating       45. 40       46. 52       9         Garpentering       45. 40       46. 52       9         Heating       34       3. 41       1	Total	157.06	121.17	22.47	800
Carpentering       533. 52       463. 47       99         Tinning       175. 00       119. 78       29         Heating       7. 75       3. 00       11         Plumbing       50. 06       6. 23       3         Painting and glasing       115. 74       36. 93       18         Steam fitting       81. 39       13. 79       9         Miscellaneous       37. 52       52. 75       9         Total       1,000. 98       695. 96       1,59         st School, No. 163:       12. 50       .55       1         Carpentering       9. 01       3. 54       1         Tinning       9. 01       3. 54       1         Heating       7. 25       80       7. 52         Plumbing       7. 25       80       7. 52         Plumbing       6. 88       3. 68       1         Gas engine       52. 32       11. 48       6         Total       87. 96       20. 05       7. 52       11         heating       45. 40       46. 52       9         Heating       34       3. 41       1         Pumbing       17. 44       1. 94       1	Ittah Cahaal No. 117.				
Timing	Carnentering	£22 E9	462 47	1 1	004
Pitting	(Nanime			•••••	990
Plumbing         50.06         6.23         58           Painting and glasing         115.74         36.93         188           Steam fitting         81.39         13.79         9           Miscellaneous         37.52         52.75         9           Total         1,000.98         605.95         1,59           st School, No. 163:         12.50         .55         1           Carpentering         9.01         3.54         1           Tinning         9.01         3.54         1           Heating         7.52         80         7           Plumbing         7.25         80         8           Painting and glasing         6.88         3.68         1           Gae engine         52.32         11.48         6           Total         87.96         20.05         7.52         11           heating School, No. 136:         82         20.05         7.52         11           carpentering         543.42         281.88         82           Tinning         345.40         46.52         9           Heating         34.4         3.4         3.4           Plumbing         17.44         1.9	Westing	175.00	119.70	• • • • • • • • •	207
Painting and glasing       115. 74       36. 93       18. 88 team fitting.       81. 39       13. 79       9       9         Miscellaneous       37. 52       52. 75       9       9       1,500. 98       605. 95       1,59       9       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59       1,59	Manual /	1.13	8.00		
Total.         1,000.98         695.95         1,59           sit School, No. 163:         Carpentering.         12.50         .55         1           Tinning.         9.01         3.54         1           Heating.         7.25         80         8           Plumbing.         6.88         3.68         1           Gas engine.         52.32         11.48         6           Total.         87.96         20.05         7.52         11           bestley School, No. 136:         Carpentering.         45.40         46.52         9         82           Tinning.         45.40         46.52         9         9         46.52         9         9           Heating.         17.44         1.94         1         1         1         1         1         1         1         1         1         1         1         97         3         3         3         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1 <t< td=""><td>riumoing</td><td>50.00</td><td>0.23</td><td>• • • • • • • • • • • •</td><td></td></t<>	riumoing	50.00	0.23	• • • • • • • • • • • •	
Total.         1,000.98         695.95         1,59           sit School, No. 163:         Carpentering.         12.50         .55         1           Tinning.         9.01         3.54         1           Heating.         7.25         80         8           Plumbing.         6.88         3.68         1           Gas engine.         52.32         11.48         6           Total.         87.96         20.05         7.52         11           bestley School, No. 136:         Carpentering.         45.40         46.52         9         82           Tinning.         45.40         46.52         9         9         46.52         9         9           Heating.         17.44         1.94         1         1         1         1         1         1         1         1         1         1         1         97         3         3         3         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1 <t< td=""><td>rainting and glazing</td><td>115.74</td><td>36.93</td><td></td><td>152</td></t<>	rainting and glazing	115.74	36.93		152
Total         1,000.98         695.95         1,59           set School, No. 163:         Carpentering.         12.50         .55         1           Tinning.         9.01         3.54         1           Heating.         7.25         80         8           Plumbing.         6.88         3.68         1           Gas engine.         52.32         11.48         6           Total.         87.96         20.05         7.52         11           beatley School, No. 136:         Carpentering.         45.40         46.52         9         82           Tinning.         45.40         46.52         9         9         84         8.41         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1<	Bteam fitting	81.39			95
Total.         1,000.98         695.95         1,59           sit School, No. 163:         Carpentering.         12.50         .55         1           Tinning.         9.01         3.54         1           Heating.         7.25         80         8           Plumbing.         6.88         3.68         1           Gas engine.         52.32         11.48         6           Total.         87.96         20.05         7.52         11           bestley School, No. 136:         Carpentering.         45.40         46.52         9         82           Tinning.         45.40         46.52         9         9         46.52         9         9           Heating.         17.44         1.94         1         1         1         1         1         1         1         1         1         1         1         97         3         3         3         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1         97         3         1 <t< td=""><td>Miscellaneous</td><td>37.52</td><td>52.75</td><td></td><td>90</td></t<>	Miscellaneous	37.52	52.75		90
st School, No. 163: Carpentering. 12.50 .55 .1 Heating. 9.01 3.54 .1 Heating. 7.25 .80 .83 .68 .1 Gas engine. 52.32 11.48 .6  Total .87.96 20.05 7.52 11. bestley School, No. 136: Carpentering. 45.40 46.52 .9 Heating. 45.40 46.52 .9 Heating. 17.44 1.94 .1 Painting and glasing 26.06 9.04 .3  Total .87.96 20.05 7.52 11. Series School, No. 136: Carpentering .98.96 .99.96 .3  Total .99.96 .10 .10 .10 .10 .10 .10 .10 .10 .10 .10		1 000 08	805 Q5	·	1 506
Carpentering     12.50     .55     1       Tinning     9.01     3.54     1       Heating     7.25     80     7.52       Plumbing     6.83     3.68     1       Painting and giasing     6.83     3.68     1       Gas engine     52.32     11.48     6       Total     87.96     20.05     7.52     11       seatier School, No. 136:     281.88     82       Carpentering     45.40     46.52     9       Heating     34     3.41     9       Heating     17.44     1.94     1       Plumbing     17.44     1.94     1       Painting and giasing     26.05     9.04     3       Total     632.32     339.72     3.41     97       8son School, No. 88:     2       Carpentering     90.64     83.16     12       Tinning     7.50     6.07     1       Heating     7.50     6.07     21       Plumbing     8.69     11.51     7.74     11		2,000.80			-,56
Painting and glasting   0.88   3.68   10	st school, No. 163:			1	
Painting and giasing   0.88   3.68   18   18   19   11.48   68   19   19   19   19   19   19   19   1	Carpentering			II	13
Painting and giasing   0.88   3.68   18   18   19   11.48   68   19   19   19   19   19   19   19   1	Tinning.	9.01	3.54		12
Painting and giasing   0.88   3.68   18   18   19   11.48   68   19   19   19   19   19   19   19   1	Heating.		<sup>1</sup>	7.52	7
Painting and glasing       6.88       3.68       1         Gas engine       52.32       11.48       6         Total       87.96       20.05       7.52       11         basatley School, No. 136:       20.05       7.52       11         Carpentering       45.40       46.52       8         Tinning       34       3.41       9         Heating       17.44       1.94       1         Plumbing       17.44       1.94       1         Total       632.32       339.72       3.41       97         Scon School, No. 80:       632.32       339.72       3.41       97         Carpentering       90.64       83.16       12         Tinning       7.50       6.07       1         Heating       7.50       6.07       1         Plumbing       5.69       1.91       212.74       21         Plumbing       5.69       11.51       7.74       1	Plumbing.	7.25	.80		8
Total.         87.96         20.05         7.52         11           destley School, No. 136:         543.42         281.88         82           Carpentering.         45.40         46.52         9           Heating.         34         3.41         1           Plumbing.         17.44         1.94         1           Painting and glazing.         26.06         9.04         3           Total.         632.32         339.72         3.41         97           Bson School, No. 80:         90.64         83.16         12           Carpentering.         90.64         83.16         12           Timing.         7.50         6.07         1           Heating.         75         1.91         212.74         21           Plumbing.         8.69         11.51         7.74         11	Painting and glasing	6.88	3.68		10
Total.         87.96         20.05         7.52         11           destley School, No. 136:         543.42         281.88         82           Carpentering.         45.40         46.52         9           Heating.         34         3.41         1           Plumbing.         17.44         1.94         1           Painting and glazing.         26.06         9.04         3           Total.         632.32         339.72         3.41         97           Bson School, No. 80:         90.64         83.16         12           Carpentering.         90.64         83.16         12           Timing.         7.50         6.07         1           Heating.         75         1.91         212.74         21           Plumbing.         8.69         11.51         7.74         11	Gas engine				63
Seation   School   No. 136:	_	97.04	20.05	7 52	116
Carpentering.     b43. 42     281. 88     82       Tinning.     45. 40     46. 52     9       Heating.     34     3. 41     1       Plumbing.     17. 44     1. 94     1       Painting and glazing.     26. 06     9. 04     3       Total.     632. 32     339. 72     3. 41     97       Bson School, No. 89:     20. 64     33. 16     12       Carpentering.     90. 64     33. 16     12       Tinning.     7. 50     6. 07     1       Heating.     .75     1. 91     212. 74     21       Plumbing.     5. 69     11. 51     7. 74     11		07.90	, 20.W	7.00	-10
Heating   40. 40	Company oction, No. 136:				
Heating   40. 40	Carpeduaring				820
Plumbing   17.44   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.	inning	45.40	46.52		91
Plumbing   17.44   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.94   1.			.34	8.41	
Total.         632.32         339.72         3.41         97           Bon School, No. 80:         20.64         33.16         12           Carpentaring.         90.64         33.16         12           Timning.         7.50         6.07         1           Heating.         .75         1.91         212.74         21           Plumbing.         5.69 <t< td=""><td>rumping.</td><td>17.44</td><td>1.94</td><td> <b> </b></td><td>19</td></t<>	rumping.	17.44	1.94	<b> </b>	19
Seon School, No. 80:     90. 64     83. 16     12       Carpentering.     7. 50     6. 07     3       Heating.     .75     1. 91     212. 74     21       Plumbing.     5. 69      11. 51     7. 74     11	Painting and glazing	26.06	9.04		35
Carpentering.     90.64     83.16     12       Tinning.     7.50     6.07     1       Heating.     .75     1.91     212.74     21       Plumbing.     5.69       1       Painting and giasting.     11.51     7.74      1	Total	632. 32	339. 72	3.41	978
Carpentering.         90.64         83.16         12           Tinning.         7.50         6.07         1           Heating.         .75         1.91         212.74         21           Plumbing.         5.69         .77         1         1           Painting and glasting         11.51         7.74         1         1					
Tinning     7.50     6.07     1       Heating     .75     1.91     212.74     21       Plumbing     5.69     .80     .80       Painting and giasting     11.51     7.74     .80	fison School, No. 89:	90.64	33.16	l <b></b>	123
Plumbing 5.69 1.91 212.74 21. Plumbing 11.51 7.74 11.	Son School, No. 89:			1	13
Plumbing 5.69 Painting and glazing 11.51 7.74	fison School, No. 89: Carpentering Tinning				^
	Stor School, No. 80: Carpentering	7.50	1.91	212.74	210
	Stor School, No. 80: Carpentering	7.50 .75	1.91	212.74	210
Total 118 00 40 00 010 74 97	Stor School, No. 80: Carpentering	7.50 .75 5.69	1.91		5
	Sion School, No. 89: Carpentering	7.50 .75 5.69	1.91		218 5 19

Class of work.	Labor.	Material.	Contract.	Total
Vilson Normal School, No. 162:				
Carpentering	\$667.13	\$115.04		2782
Tinning.		131.18		354.
		13. 37		4
Heating.		4.92		7
Plumbing.		46.13		131
Painting and glazing		302, 39		414
Steam fitting		2.18		
Grading		4.26		6
Miscellaneous	45.12	4.20		49
Total	1,206.30	619.47		1,825
Visconsin Avenue Manual Training School, No. 164:				
Heating	13, 53	2.63	l	16
Plumbing	2.43	.88		• 2
Plumbing. Painting and glazing.	2.00	.38		2
		0.00		
Total	17. 96	3. 39	•••••	21
Voodburn School, No. 101:			1 1	
Carpentering		4. 55		16
Tinning	. 89.75	74.77		164
Heating	. 7. 18	.26		7
Plumbing	4.06	2.12	l	6
Painting and glazing	15.31	7.63		22
Total	128.30	89. 33		217
Vormiey School, No. 49:				
Carpentering	8.50	1.47	1	•
Tinning.	85.82	76.57		167
Heating.		1.01	\$85.33	95
Plumbing.		1.25	<b>4</b> 00, 00	7
Painting and glazing.	6.26	1.94		į
Gas engine	19.51	10.81		3
Miscellaneous				<b>J</b>
MISCHIANEOUS		1.00		
Total	135. 85	94.05	85. 33	31.
arious schools on written orders in shop:				
Carpentering	. 787.15	39.14	1	820
Tinning.	700.54	417.32		1.11
Heating.	654.06	89.78		743
Plumbing	117.69	.50		118
Painting and glazing.		207.04		296
Steamfitting.		59.71		134
Gas engines		7.00		42
Miscellaneous		251.55		5, 17
Horseshoeing		102.67		3, 17.
Total	7,472,48	1.174.71	<del>                                     </del>	8,647
AAmm	. ,,,,,,,,,	1 4,412. (1		3,01

### SUMMARY.

Total amount of labor accounted for on written orders.   24, 72, 94     Total amount of material accounted for on written orders.   27, 70, 77     Total amount of minor contracts and shop orders.   6, 985, 94     Purchase of forage for July, August, and September.   300, 34     Pur rata share of purchase of harness   62, 25     Horseshoeing done by outside shops.   20, 00     Gas consumed in machine shop.   231, 90     Purchase of coal.   231, 90     Allotment to sand wharf   231, 90     Allotment to sand wharf   231, 91     Allotment to engineer stables (forage, etc., for 9 months).   1, 851, 90     Allotment to U street stables (new roof)   47, 95     Contract for heating Congress Heights School   5, 201, 45     Contract for heating Jefferson School   67, 785, 00     Traveling expenses, municipal architect, New York and return   19, 00     Traveling expenses, purchased   2, 20     Material on hand   23, 33, 35     Unexpended   297, 84     Total   100, 000, 00     Total   100, 0	made and a state of the an account of the an amount of the an amount of the analysis and and	
Total amount of minor contracts and shop orders.   6,985.54	Total amount of material accounted for on written orders	97 700 77
Purchase of forage for July August, and September         300.34           Pro rata share of purchase of harness         62.25           Horseshoeing done by outside shops.         30.00           Gas consumed in machine shop         38.64           Purchase of coal.         231.90           Allotment to sand wharf         25.17           Allotment to purchasing office (for inspector)         70.00           Allotment to U street stables (forage, etc., for 9 months)         1,351.30           Allotment to U street stables (new roof)         47.36           Contract for heating Jefferson School         5,201.45           Contract for heating Jefferson School         6,785.00           Traveling expenses, municipal architect, New York and return         19.00           Traveling expenses, Capt. Powell, Newark, N. J., and return         22.24           Contract for ventilating Force School         3,481.00           Sewer tap at Blake School         2.00           Material on hand         33.82           Unexpended         297.94	Total amount of minor contracts and shop orders.	6, 965, 54
Horseshoeing done by outside shops.   20.00	Purchase of forage for July, August, and September	200.34
Gas consumed in machine shop       38.49         Purchase of coal.       231.59         Allotment to sand wharf       25.17         Allotment to purchasing office (for inspector).       70.00         Allotment to engineer stables (forage, etc., for 9 months).       1,351.30         Allotment to U street stables (new roof).       47.34         Contract for heating Congress Heights School.       5,291.45         Contract for heating Jefferson School       6,785.00         Traveling expenses, municipal architect, New York and return.       19.00         Traveling expenses, Capt. Powell, Newark, N. J., and return.       22.24         Contract for ventilating Force School.       3,481.00         Sewer tap at Blake School       2.00         Material on hand.       38.82         Unexpended.       297.44	Pro rata share of purchase of harness	62.25
Purchase of coal.       231.90         Allotment to sand wharf.       25.17         Allotment to purchasing office (for inspector).       70.00         Allotment to underestables (forage, etc., for 9 months).       1,351.30         Allotment to U street stables (new roof).       47.58         Contract for heating Congress Heights School.       5,301.45         Contract for heating Jefferson School.       6,785.00         Traveling expenses, municipal architect. New York and return.       18.00         Traveling expenses, Capt. Powell, Newark, N. J., and return.       2.24         Contract for ventilating Force School.       3,481.00         Sewer tap at Blake School.       2.00         Material on hand.       335.82         Unexpended.       207.84	Horseshoeing done by outside snops.	20.00
Allotment to sand wharf. 25.17 Allotment to purchasing office (for inspector). 70.00 Allotment to engineer stables (forage, etc., for 9 months). 1,351.30 Allotment to U street stables (new roof). 47.54 Contract for heating Congress Heights School. 5,201.45 Contract for heating Jefferson School. 6,785.00 Traveling expenses, municipal architect, New York and return. 19.00 Traveling expenses, Capt. Powell, Newark, N. J., and return. 22.24 Contract for ventilating Force School. 3,481.00 Sewer tap at Blake School 20.00 Material on hand. 353.53 Unaxpended. 227.34	Cas consumed in machine shop.	291.50
Allotment to purchasing office (for inspector).  Allotment to engineer stables (forage, etc., for 9 months).  Allotment to U street stables (new roof).  Allotment to U street stables (new roof).  Contract for heating Congress Heights School.  Contract for heating Jefferson School.  Taveling expenses, municipal architect, New York and return.  12.00  Traveling expenses, Capt. Powell, Newark, N. J., and return.  22.01  Material on hand.  23.83  Unexpended.	Allotment to sand wharf	25, 17
Allotment to U street stables (new roof)	Allotment to purchasing office (for inspector)	70.00
Contract for heating Congress Heights School.   5,301.45	Allotment to engineer stables (forage, etc., for 9 months)	1,351.30
Contract for heating Jefferson School         6,785.00           Traveling expenses, municipal architect, New York and return         19.00           Traveling expenses, Capt. Powell, Newark, N. J., and return         22.24           Contract for ventilating Force School         3,481.00           Sawer tap at Blake School         2.00           Material on hand         335.23           Unexpended         207.34	Allotment to U street stables (new root)	47.56
Traveling expenses, Capt. Fowell, Newark, N. J., and return	Contract for heating Congress designs School.	6.785.00
Traveling expenses, Capt. Fowell, Newark, N. J., and return	Traveling expenses, municipal architect, New York and return.	19.00
Sewer tap at Blake School	Traveling expenses, Capt. Powell, Newark, N. J., and return.	22.34
Material on hand. 335. 82 Unexpended. 297. 84	Contract for ventilating Force School.	3,481.00
Unexpended 297.34	Sewer tap at Biake School.	
Total		
	Total	100,000.00

Report of inspection of steam boilers, public schools, 1913-14.

		epe	mi ——	oj t	nsp	ectio	m (	) <u> </u>	uea —	m 	001	LUET 8	, pu	ioire seno	ols, 1913–14.
School.	Bollers.	High pressure.	Low pressure.	Length.	Diameter.	Tubes.	Size of tubes.	Manholes.		Size of man-	į	Tested.	Safety blows.	Date of inspection.	Remarks.
Armstrong Manual	2	2		Ft. 154	In.	56	In. 3)	1		by		150	120	1913. June 10	Shells and tubes in good condition.
Training. Buwen, S. J Brightwood Brookland	1 1 2	1 1	i	14 12 12	54 42 42	64 43 52	3 3 3	1 1 1	11	by	15	100 100 100	50 25 25	June 4 June 6 May 21	Renewed feed lines. Boiler retubed. Shells and tubes in good condition.
Do Business High.	3		1	12 16	42 66	38 66	3	1 2				100 120	25 80	do June 16	Do. Renewed blowlines and water column.
	 4	2 3 	 8	16 16 12	66 66 52	66 66 64	333	2 2 1	12	bv	16	120 120 100	80 80 25	do May 19	Put new set of grates at
Do Cranch	·	11		10	42	38		ï	ii	b <b>y</b>	 15	100 75	25 25	do May 31	boiler No. 3. Shells and tubes in good con-
Curtis		•••	2	12	54	65	3	2	11	bу	15	100	25	Мау 8	dition. Put new tube in west boiler, extended blow-off lines to sewer, changed grates from
Dennison	2	•••	2	10	42	49	3	2	11	bу	15	100	20	May 10	sewer, changed grates from hard to soft coal grates, and studded handhole plate. Repaired boiler fronts and fire-box sides; changed grate bars from hard to soft coal bars.
Dent <sup>3</sup> Eastern High.	2	•••	3	14	48	54	3	2	ii	b <b>y</b>	15	100	25	May 28	Good condition. Relined fire boxes and changed grate bars from hard to soft coal bars; re-
Emery Force	2 2		2 2	14 12	54 42	54 46	3	1				100 100	25 25	May 21 May 9	tubed 2 boilers. Retubed boilers. Put new set of grates in south boiler; rolled tubes; calked and chipped rivets and seams of north boiler.
		• • •	2	12	48	48	3	1	11	bу	15	60	30	do	Shells and tubes in good con- dition.
Gales Garnet	2	•••	2 2	10 12	42 42	49 46	3	1		by by		78 100	25 25	May 24 June 7	Repaired fire-box sides.  Retubed boilers and put new grate bars in both boilers.
Grant	2	•••	2	10	42	42	3	1	11	bу	15	100	25	June 6	Retubed boilers and repaired fire-box sides; relined fire- box and changed grate bars from hard to soft coal bars.
Henry	2	• • •	2	12	46	42	3	1	11	bу	15	100	25	May 19	Shells and tubes in good con- dition.
Jefferson Lincoln	2	2	2	12 10	42 42	46 38	3	1		b <b>y</b>		80 75	30 25	June 4 May 29	Repaired fire-box sides.  Changed grate bars from hard to soft coal bars and re- paired fire-box sides.
M Street heat- ing plant.	2	2		21	48	139	4	2	11	bу		150	90	June 10	Shells and tubes in good con- dition.
McKinley Manual Training. <sup>9</sup> Do.4	6	6	•••		••••	••••		•••				150	100	June 18 June 19	Put in new set of grates.
Do.*										••••		150 150	100 100	June 20do	
Peabody Seaton							l l		11 11			150	100 25 25	May 26 May 23	Retubed boilers. Repaired fire-box sides and renewed all returns and
Stevens	2	<b> </b>	2	12	42	46	3	1	11	b <b>y</b>	15	100	25	May 8	blow-offs. Shells and tubes in good con-
Sumner Syphax	1	 i	2	12 14	48 54	54 52	3	1	11 11	by by		100 100	25 50	do June 3	dition. Do. Renewed blowline and re-
Tenley Wallach	1 2	·	1 2	10 12	45 46	46 52	3	1		by by		75 70	25 25	June 6 May 28	paired fire-box sides. Put 1 tube in boiler. Retubed boilers and renewed water columns and blow-
Webster Western High	2 2		2 2	14 16	54 60	54 82	3 3	1 2	11 11	by by	15 15	75 120	25 60	June 5 July 1	off line. Put 1 tube in boiler. Calked seams of shell of west boiler.
Wilson Nor-	2	2		16		96	3	2	11	bу	15	150	125	1914. Jan. 3	Shells and tubes in good condition.

<sup>&</sup>lt;sup>1</sup>25-horsepower upright. <sup>2</sup>2 down-draft sectional boilers.

Boiler No. 1. Boiler No. 2.

Boiler No. 8.
Boiler No. 4.

Bollers Nos. 5 and 600gle

### REPORT OF THE PERMIT CLERK.

WARHINGTON, July 29, 1914.

SIR: I have the honor to submit the annual report of the work of this office, giving the character and number of permits issued during the fiscal year ending June 30, 1914.

Permits issued for which fees were paid.

			. 19	13			1914						L.,
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total
Water: Connections Repairs	159 132	141 84	147 65	104 76	107 92	103 74	58 77	80 45	75 56	130 77	172 71	155 101	1,431
Connections Repairs Gas:	166 67	136 76	184 74	101 64	119 62	109 72	68 54	77 39	80 63	147 94	152 51	180 66	1,536 781
Connections Repairs Auto tire inflating	280 11	240 11	358 15	226 41	166 85	165 75	124 38	131 62	160 24	247 23	307 10	210 20	2,614 415
apparatus				1	1	ļ	ļ	ļ	1	2			4
hitching posts	25 12 1	27 10	1 81 12 1	59 6 8	18 9 1	20 9 1	34 6 1	28 2 1	21 10 2	29 7	32 10	22 13	346 108 11
enlarge	10 42 18 64	12 20 46 70	20 30 58 59	30 17 36 92	11 82 43 64	14 11 61 62	7 9 57 55	13 6 64 40	7 9 70 56	9 50 46 44	18 47 44 20	16 40 56 29	167 813 800 655
Total	987	873	1,066	857	810	776	588	588	642	905	934	907	9, 222

## Special permits issued without fee.

			19	13						1914			
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	Total
Water, sewer, gas Blasting Bridges across gut-	55 1	56 8	78 8	75 8	60 3	77	72	38 3	73 1	147	122	136 1	98
ters. Cables, serial and overhead connec- tions. Driveways	18	32	45 19	42 6	29 8	31 5	16 2	14 2	35 2	24 9	50 6	<b>46</b>	36.
Engines, move .eeds, lay and repair. Parking:	95	62	12 125	9 133	8 45	6 55	4 18	3 8	11 39	10 112	109	12 105	90
Pave	16 7 13	22 8 13	21 8 83	8 16 24	8 4 6	3 4 2	4 4 5	2 7 8	3 7 34	16 17 <b>64</b>	12 15 51	22 7 26	137 307 277
Close	9 5	5	8	3 14	5	8	8	2	2 4	···ii	···ii	1 14	30
Grade	9 35	8 6 20	31 31	3 6 27	1 5 25	8 8 19	2 8 6	1 3 8	3 11 11	8 7 13	7 8 10	3 22	46 71 283
ways, occupy		1	1	3	2	1	1	<b> </b>		2		2	n
railways Steps on parkings Stop-cock boxes United States Gov-	52 12	32 	53 	66 12	28	30	10 8 12	1 7	17 	37 12	82 	70 	483
Walls, retaining Walls, retaining Water tables Wires, string Giscallaneous Wagon tags	1 5 23 56 6 6	6 22 20 1	8 40 35 8 16	2 8 35 58 9 2	2 7 16 16 10	1 3 20 16 2	5 3 8 61 1	1 4 19	2 8 51 9	7 41 59 6 2	2 6 86 48 7	1 6 49 92 4 1	17 80 80 81 63 63
Total	433	341	549	568	284	304	254	122	329	608	595	649	5,096

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Three thousand eight hundred and seventy-two communications were referred to this office, an increase of 1,852 over those of last year. Briefs were made of these on cards, permits issued when necessary, reports made, papers indorsed and returned to the respective division having supervision over the inspection of the work for which permits were issued.

A written report was made daily of all permits issued for excavation in the public

space and was forwarded to the engineer of highways.

Fourteen thousand two hundred and seventy-four applications for permits were

sorted, arranged according to location, and filed for ready reference.

Again I wish to invite your attention to the willing and efficient manner in which my two assistants, H. E. Brooks, assistant permit clerk, and G. A. Ourand, index clerk, have at all times performed their duties. As in former years I respectfully recommend the appointment of an assistant index clerk whose services are greatly needed, especially in answering the telephone calls which are increasing yearly.

Very respectfully,

H. M. WOODWARD,

Permit Clerk.

Capt. MARK BROOKE,
Assistant to Engineer Commissioner, District of Columbia.

### REPORT OF THE AUTOMOBILE BOARD.

WASHINGTON, D. C., August 28, 1914.

Siz: I have the honor to submit the following report of the automobile board for the

fiscal year ended June 30, 1914:

There were examined at the regular meetings of the board, held on the first and third Fridays in each month, and by the secretary and members at other times during the year, 3,072 persons for permits to operate motor vehicles in the District of Columbia, as required by the police regulations. Of those examined and recommended permits be issued them, 2,430 were to operate vehicles of the gasoline type, 198 of the electric type, 19 of the steam type, and 269 for motor cycles; also 124 to operate vehicles of the United States and District of Columbia Governments used for public business. Of those examined 32 were not satisfactory and were not recommended. Five permits were revoked on recommendation of the major and superintendent of the metropolitan police, and 1 permit was voluntarily surrendered.

Duplicate operator's permits were issued to 553 persons, affidavits being filed that

the original permits had been lost or destroyed.

Revenue received for permits was \$8,959, residents of the District of Columbia paying \$5,942 and nonresidents paying \$3,017, the amounts paid being shown in tables herewith.

"Enamel metal identification number tags" were issued for 3,913 motor vehicles—138 for electric pleasure, 16 for electric trucks, 2,771 for gasoline pleasure, 262 for gasoline trucks and delivery wagons, 13 for steam, and 625 for motor cycles; also 71 automobiles and 17 motor cycles of the United States and District of Columbia Governments or used on official business. Duplicate tags were procured for 175 automobiles and 20 motor cycles to replace those lost or defaced.

The number of applicants examined to operate motor vehicles and the type of motor of the vehicle to be operated is shown in the table following; also the revenue derived therefrom paid to the collector of taxes, District of Columbia, by residents

thereof.

Month.	Elec- tric.	Gaso- line.	Steam.	Motor cycles.	Not competent.	United States and Dis- trict of Colum- bia em- ployees, no iee.	Duplicate permits.	Paid for per- mits.
1913. July	16 9 13 19 24 23	184 196 234 200 160 156	2 2	21 38 21 15 24 17	4 5 11	 8 9 16 39 2 7	19 38 35 39 83 27	\$524 404 514 468 404 404

Month.	Elec- tric.	Gaso- line.	Steam.	Motor cycles.	Not competent.	Re- voked.	United States and Dis- trict of Colum- bia em- ployess, no fee.	Dupli- cate per- mits.	Paid for per- mits.
1914.  January.  February.  March April May.  June.  Total.	19 5 19 19 14 18	106 118 158 253 290 375 2,430	11 3 1	14 14 17 19 82 87	2 3 1 2 2 2 2	1 1 1 1 5	10 7 10 18 16 21	50 41 53 65 75 78	284 280 364 610 746 850

The number of "enamel metal identification number tags" issued to residents of the District of Columbia and the different kinds of motor vehicles to which the number of tags were assigned, also amount paid in fees, is shown in the table following:

, Month.	Elec	tric.	Gasoline.				United States and District of Columbia, no fee.		Duplicate tags pro-		District of
	Pleasure.	Trucks.	Pleasure.	Trucks.	Steam.	Motor cycles.	Automobiles.	Motor cycles.	Automobiles.	Motor cycles.	Paid for tags, District Columbia residents.
1913. July	11 2 10 18 14 19	5 2 8	236 201 189 206 154 152	11 8 22 20 25 20	1 2 1 3	57 53 39 34 32 31	356828	3 2 4 1	14 6 13 17 14	1 5 2 1	<b>第</b> 题式强度
1914. January. February. March. A pril. May. June.	20 8 11 10 11 4	1	158 117 239 366 403 350	17 17 14 28 41 39	2 1 2 1	57 33 64 78 79 68	6 7 2 13 5 6	1 8 1 2	11 20 28 8 19 25	1 1 3 2 4	584 353 660 986 1,972 924
Total	138	16	2,771	262	13	625	71	17	175	20	7,630

The proviso at the end of section 2 of Article XXVI of the Police Regulations of

the District of Columbia, which reads as follows:
"Provided, That where by the law of a State or Territory a resident of the District of Columbia may not lawfully operate or may not cause to be operated a motor vehicle in said State or Territory, except upon compliance with some condition or requirement as to license or tax or permit or registration for person or motor vehicle, a resident of said State or Territory shall not be allowed to operate nor cause to be operated a motor vehicle in the District except upon compliance within the District of Columbia with the same condition or requirement and with each of them: And provided further, That the law of the District of Columbia and its regulations shall in all other respects apply in all such cases and to all such persons,

was rescinded by order dated July 21, 1913; since which time nonresidents other than tourists using their motor vehicles during a transient sojourn have been required to register their motor vehicles and procure operator's permits at the same fee as is charged residents of the District of Columbia.

There was received from nonresidents during the fiscal year the sum of \$6,554.50, viz, \$3,017 for operator's permits and \$3,537.50 for "identification number typs," the States where the motor vehicles were owned being shown in detail in the following tables:

Amounts paid by nonresidents for permits to operate motor vehicles in the District of Columbia and State of their residence.

		1913							
State.		July.	August.	Septem- ber.	October.	Novem- ber	Decem- ber.		
faryland		\$119.00 20.00	\$296.00 20.00	\$250.00 30.00	\$240.00 22.00	\$190.00 8.00	\$64.0		
/irginia. Alabama Alifornia		20.00	2.00	30.00	4.00	8.00	12.0 2.0		
anada		2.00				2.00			
onnecticutuba.		2.00			2.00		2.0		
W8. 871986						2.00	2.0		
entucky aine. assachusetts.				·········	2.00	2.00 2.00 6.00			
lichigan linnesota		2.00					2.0		
lew Hampahire lew Jersey lew York		2.00		2.00	2.00	2.00 2.00	2.0		
orth Carolinavnnsylvania		2.00	2.00 2.00	2.00 2.00	2.00 4.00	6.00 2.00 2.00	2.0		
tahVisconsin		2.00	2.00		2.00	2.00			
•									
State.	January.	Febru- ary.	March.	April.	May.	June.	Total.		
faryland	\$126.00 34.00	* \$70.00 20.00	\$130.00 46.00	\$256.00 48.00	\$366.00 50.00	\$354.00 58.00	\$2, 451. 0 368. 0		
labama alifornia	2.00			2.00	2.00		2. 12.		
anadaolorado	2.00 2.00			2.00			2.0 6.0		
ube	2.00			2.00	••••••	2.00	6. 2. 4.		
linois	2.00	2.00		2.00		2.00	2. 4.		
owa. Cansas Centucky	2.00		2.00	2.00	2.00		6. 4.		
ANI MIANA			2.00			2.00	4. ( 2. (		
faine	2.00 2.00 4.00	4.00					4. ( 24. ( 6. (		
finnesota (ississippi		2.00					4. 2.		
issouriiebraeka		2.00	·		2.00		2. 2.		
lew Hampshire	2 00			2.00			2. 14.		
New York	6.00	6.00 2.00		4.00			26.0 2.0 8.0		
Ohio Pennsylvania Rhode Island	4.00 2.00	6.00	2.00	2,00	4.00		30.0 2.0		
Switserland Pexas	2.00		2.00	2.00			2. 4.		
Utah West Virginia Wisconsin		2.00				······	4.0 2.0 2.0		
W MCODRED				• • • • • • • • • • • • • • • • • • • •			7.		

Amount paid by nonresidents for "identification number tags" for motor vehicles in the District of Columbia and State of their residence.

	1913							
State.	July.	August.	Septem- ber.	October.	Novem- ber.	Decem-		
Maryland	\$165.50 82.00	3326.00	\$258.00	\$274.00	\$174.00	\$84.00		
Virginia	2.00	38.00	24,00	22.00	12.00	10.00		
California		20.00	2.00		2.00			
Connecticut							2.0	
Minnesota New Jersey		2.00 2.00		• • • • • • • • • • • • • • • • • • • •		2.00	2.0 2.0	
New York			2.00	4.00	2.00	2.00		
North Carolina	• • • • • • • • • •	4,00	2.00	2.00	2.00	2.00		
Pennsylvania	• • • • • • • • • • • • • • • • • • •	1.00	2.00	2.00	2.00	•••••		
West Virginia					2.00			
		<u> </u>	<u></u>	l				
State.	1914							
	January.	Febru- ary.	March.	April.	May.	June.	Total.	
MarylandVirginia	26.00	\$104.00 20.00	\$176, 00 56, 00	\$350.00 72.00	\$432.00 54.00	\$416,00 88,00	<b>\$2,991.50</b>	
California					2.00	•••••	6.0	
England	1					2,00	2.0	
GeorgiaIndiana		• • • • • • • • • • • • • • • • • • • •			¦	2.00	2.00	
				2.00			2.00	
					1 2.00	î .		
Iowa			2,00		l		2.0	
Iowa Kentucky Louisiana						2.00	2.00 2.00	
Iowa Kentucky Louisiana. Maine	2.00			•		2.00	2.00 2.00 2.00	
lowa. Kentucky Louisiana. Maine. Massachusetts.	2.00	2.00	2.00			2.00	2.00 2.00 2.00 2.00 2.00	
lowa. Kentucky Louisiana. Maine Massachusetts Minnesota Mississippi.	2.00	2.00				2.00	2.00 2.00 2.00 2.00 2.00 2.00	
lows. Kentucky Louisiana. Maine Massachusetts Minnesota. Missispipi. Missouri	2.00	2.00	2.00			2.00	2.00 2.00 2.00 2.00 2.00 2.00 2.00	
Iowa. Kentucky Louisiana. Maine Massachusetts Minnesota. Mississippi. Missouri New Jersey New York.	2.00	2.00	2.00	•		2.00	2.00 2.00 2.00 2.00 2.00 2.00 8.00 18.00	
lows. Kentucky Louisiana. Maine Massachusetts Minnesota. Missispipi. Missouri New Jersey New York. North Carolina.	2.00	2.00	2.00	2,00		2.00	2.00 2.00 2.00 2.00 2.00 2.00 8.00 18.00	
lowa. Kentucky Louisiana. Maine. Massachusetts. Minnesota. Missispipi. Missouri. New Jersey New York. North Carolina.	2.00	2.00	2.00	2, 00 6, 00	2.00	2.00	2.00 2.00 2.00 2.00 2.00 2.00 18.00 18.00 2.00	
lowa Kentucky Louisiana. Maine Massachusetts Minnesota. Missisppi. Missouri New Jersey New York. North Carolina. Ohlo. Pennsylvania.	2.00	2.00	4.00	2, 00 6, 00	2.00	2.00	2.00 2.00 2.00 2.00 2.00 2.00 8.00 6.00 2.00 24.00 24.00	
lowa. Kentucky Louisiana. Maine. Massachusetts Minnesota. Mississippi. Missouri New Jersey	2.00	2.00 2.00 2.00 2.00 4.00	4.00	2,00	2.00	2.00 	2.00 2.00 2.00 2.00 2.00 2.00 18.00 2.00 2.00 2.00 2.00	

The amounts paid the collector of taxes, District of Columbia, for "enamel metal identification number tags" and for permits to operate motor vehicles is given in the table following; also shows the increase each fiscal year.

	Per	mits.	Та	gs.	Nonresidents.	
Year.	Number issued.	Fees paid.	Number issued.	Fees paid.	For permits.	For tags.
1907-8. 1908-9. 1909-10. 1910-11. 1911-12. 1912-13. 1912-14.	1,050 1,818 2,262 2,262 2,593 2,737 3,077	\$1,292 4,460 6,022 6,246 5,942	2, 214 1, 684 2, 387 2, 634 4, 070 4, 035 3, 913	\$2,666 3,568 4,752 5,314 7,848 7,872 7,650	\$572 3,017	\$1,939.58 3,537.50

The act of Congress approved February 15, 1908, provides "that for identification number tag and registration thereof the owner of each motor vehicle shall pay the sum of two dollars, and the Secretary of the automobile board shall, after the payment of said fee to the collector of taxes, District of Columbia, issue said owner the identification tag."

By the changing of the identification number tags from vehicle to vehicle the records are becoming impaired to such an extent that often times tags which are void because of the motor vehicle having passed from ownership of the person to whom said tag was issued having been disposed of and to have an accurate record the recommendation for yearly registration and distinctive number tag for each calendar year is renewed and urgently recommended. Very respectfully,

H. M. WOODWARD. Secretary Automobile Board.

Capt. MARK BROOKE, Assistant to Engineer Commissioner, District of Columbia.

#### REPORT OF THE ELECTRICAL ENGINEER.

Washington, September 14, 1914.

Six: I have the honor to submit the following report of the operations of the electrical department during the fiscal year ended June 30, 1914:

#### IMPROVED INCANDESCENT ELECTRIC LIGHTING.

This system was ordered for the following streets and at the close of the fiscal year the installation of the posts and cables was under way:

i Street from Massachusetts Avenue to Fourteenth Street NW.

H Street from Massachusetts Avenue to Fourteenth Street NW.

New York Avenue from Ninth to Fourteenth Streets NW.

Eighth Street from G to K Streets NW. Ninth Street from G to K Streets NW. Tenth Street from G Street to New York

Avenue NW. Eleventh Street from G Street to New

York Avenue NW. Twelfth Street from G to I Streets NW. Thirteenth Street from G to I Streets NW. Fourteenth Street from G Street to New York Avenue NW.

G Street from Seventh Street to New Jersey Avenue NW.

F Street from Seventh to North Capitol Streets NW.

E Street from Seventh Street NW. to Union Station Plaza NE.

U Street from Ninth to Eighteenth Streets NW.

Eighteenth Street from U Street to Columbia Road NW.

New Jersey Avenue from B to G Streets NW.

Around Iowa Circle.

North Capitol Street between Massachusetts Avenue and G Street.

G Street between North Capitol and First Streets NE

First Street between Massachusetts Avenue and G Street NE.

L Street between Fourteenth Street and Vermont Avenue NW.

This work involved the erection of 600 lamps of 100 candlepower each, over about 8.85 miles of streets.

#### ARC LIGHTING.

The appropriation act for the fiscal year 1912 required that all inclosed arc lamps in service on July 1, 1911, be replaced either with 4-ampere magnetite arc lamps or with some other form of improved lighting to be selected by the commissioners, the changes to be made at the rate of not less than 400 lamps per annum, and to be completed by April 1, 1914. In compliance with this act, the following changes have been made:

For the year ended April 1, 1912: Replaced by incandescent electric lamps	199 201
	400
For the year ended April 1, 1913:	
Replaced by incandescent electric lamps	134
Changed to 4-ampere magnetite lamps	43
Ordered changed to 6.6 ampere (work completed Jan. 30, 1914)	78
For the year ended April 1, 1913:  Replaced by incandescent electric lamps	168
<del>-</del>	400

İ

For the year ended April 1, 1914:	
Changed to 4-ampere magnetite lamps.	87
Replaced by incandescent electric lamps.	9
Ordered replaced by incandescent electric lamps (work not completed)	8
Ordered replaced by 4-ampere magnetite lamps (work not completed)	210

#### PENNSYLVANIA AVENUE LIGHTING.

380

In the annual report of this department for the fiscal year 1909, a description was given of a suggested method of improving the lighting of Pennsylvania Avenue from First to Fifteenth Street, involving the erection of two rows of standards on "isles of safety" in the roadway close to the outer rails of the street-car tracks. This plan was formally referred to the commission on fine arts in 1911, whose report states:

formally referred to the commission on fine arts in 1911, whose report states:

"Members of the commission are personally familiar with a large number of the instances, both abroad and in this country, illustrated in the paper accompanying the report on the plan, and each of the members has independently reached the opinion that in every case of long straight avenues the appearance of the streets has suffered materially from the presence of the posts in the midst of the street. Therefore, in spite of the fact that such a method of lighting has been tried in many important thoroughfares, it is believed that lamps on tall posts, with isles of safety in connection, near the middle of the roadway, would confuse and seriously injure the appearance of Pennsylvania Avenue, the most important street vista in the Capital. Another consideration, which is both practical and aesthetic, is that the presence of these posts and islands in the roadway would interfere with the best handling of parades."

The elimination of a roadway plan of lighting practically fixed the position of the posts at the curb in line with the trees. In 1912 experiments with both tungsten and luminous arc lamps were made with posts temporarily erected at the curb between First Street and John Marshall Place, resulting in the adoption of the latter type of lamp. 6.6-ampere luminous arc lamps are used for the purpose, equipped, however, with special parts to permit of their installation within an elongated spherical ribbed frame of cast aluminum holding segments of polycase alabaster glass. The posts were designed by James Rush Marshall and Albert L. Harris, of the firm of Hornblower & Marshall, and follow the lines of the posts, also designed by them, that are used in the improved incandescent electric lighting system.

#### LIGHTS ALONG STEAM RAILROADS.

The situation with respect to the several suits brought by the District of Columbia against steam railroad companies to compel repayment of sums expended by the District for maintaining lights along the respective rights of way of such companies is as follows:

Judgment in the sum of \$1,042.04 secured against the Washington Terminal Co. for the amount due up to and including September 1, 1909, has been paid, together with costs and with interest from the above date to February 28, 1913. The total paid was \$1,392.08. A retrial of this case on certain questions of fact is now pending in the Supreme Court of the District of Columbia.

The case of the District of Columbia against the Philadelphia, Baltimore & Washington Railway Co. is still before the Supreme Court of the United States. Should this case be decided against the District a new suit will be entered under the following provision of the appropriation act for the District for the fiscal year ending June 20 1014.

30, 1914:

"Hereafter all railroads other than street railroads shall pay to the District of Columbia for the lighting, under the direction and control of the Commissioners of the District of Columbia, of the public roads, streets, avenues, and alleys, for their full width, through which their tracks may be laid, for the length of the street occupied by the said tracks, whether the said tracks be laid above, below, or at grade, as well as for the lighting of the subways and bridges over or under which the tracks of said railroads pass; and in default of payment of such bills actions at law may be maintained by the District of Columbia against said railroads or their successors transferees, or lessees, therefor: Provided, That nothing herein shall be held to repeal the act of May twenty-sixth, nineteen hundred and eight, relating to the Washington Terminal Company."

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The Baltimore & Ohio Railroad Co. and the Georgetown Barge, Dock, Elevator & Railway Co. are continuing to pay for the maintenance of the lamps charged to them.

The changes have been as follows:

Kind of light.	Added.	Discon- tinued.
Mantie gas.	265	15
Electric are: 6.6-ampere series, inclosed 5-ampere multiple, inclosed		13 10
6.B-ampere magnetite. 4-ampere magnetite.	1 188	8
Electric incandescent: 100-candlepower.		•
60-candlepower. 40-candlepower.	115 183	7
4-glower Nernst. Street-designation lamps:	4.	
On fire alarm posts— Gas.	11	
Electric incandescent	7	
Gas		
On plain posts, gas.		1
Total	1,153	4

Net increase during the year, 662 lamps.

These lamps replaced two 6.6-ampere series inclosed arc lamps, twenty-two 5-ampere multiple inclosed arc lamps, five 4-ampere magnetite arc lamps, one 60-candlepower incandescent electric lamp, three 40-candlepower incandescent electric lamps, and one bundred and twenty-eight mantle gas lamps.

Three lamps replaced twelve 40-candlepower incandescent electric lamps and four mantle gas lamps.

Three of these lamps replaced an equal number of mantle gas lamps.

#### SUMMARY OF CHANGES.

Net increase in number of lamps	662 48
Replaced by other kinds	443
Total changes	1,153

#### Lamps of all kinds in service July 1, 1914, as compared with July 1, 1913.

Kind of light.	1913	1914
Mantie gas	10,078	10, 187
Electric arc: 6.6-ampere series inclosed 5-ampere multiple inclosed	378	166 278
6.6-ampere magnetite. 4-ampere magnetite. Electric incandescent:		188 479
100-candlepower.	1, 439 206	1,785 206
60-candlepower. 40-candlepower. 4-clower Nernst	315 3,018 60	329 3, 162 64
Street designation lamps: Gas	434 65	424 67
Total	16, 678	17,838

Increase during the year, 662 lamps.

<sup>&</sup>lt;sup>1</sup> These lamps replaced seventy-eight 5-ampere multiple inclosed arc lamps, thirty-two 4-ampere magnetite arc lamps, 1 100-candlepower incandescent electric lamps, the four mantle gas lamps.

2 One hundred and twenty-eight of these lamps replaced an equal number of 6.6-ampere series inclosed

#### DISTRICT UNDERGROUND CONDUIT AND CABLE SYSTEM.

The following conduit connections were made to the underground system:

## Fire-alarm posts (total, 12).

Southwest corner of First and Patterson | Streets NE.1

Southeast corner of Eighth Street and Florida Avenue NE.1

Southeast corner of Fifteenth and B Streets NE.1

Southeast corner of Thirteenth Street and Spring Road NW.<sup>1</sup>

Southwest corner of North Capitol and Channing Streets NW. Northwest corner of Ninth Street and New

York Avenue NW.

Southwest corner of Twentieth Street and Park Road NW.

Southeast corner of Third and K Streets NE.1

Northeast corner of Eighteenth and Kenyon Streets NW.

Southwest corner of Twenty-second and E Streets NW.

Northeast corner of Twenty-sixth and D Streets NW.

Southwest corner of New Hampshire Avenue and G Street NW.

#### Patrol posts (total, 12).

Southeast corner of First and M Streets NE.1

Southwest corner of Sixteenth and B Streets NE.1

Southeast corner of Eighth and G Streets 8E.

Southeast corner of Third and L Streets NE.

D Street between Fifth Street and John Marshall Place NW.1

South side of H Street west of Madison Place NW.

Northwest corner of Nineteenth and B Streets NW.

Northeast corner of Twentieth and E Streets NW.

Southeast corner of Twenty-second and E Streets NW.

East side of Twenty-second Street between E Street and New York Avenue NW.

Southeast corner of Twenty-sixth and D Streets NW. Southeast corner of Twenty-sixth and F

Streets NW.

#### Connections to buildings (total, 8).

Department of Justice building. No. 5 police station house. Washington Railway & Electric Co. build-ing, Twenty-fourth and P Streets NW. Annex to Insular Bureau, Eighteent... and F Streets NW. House of Detention.

Quartermaster's Department stables. Nineteenth and B Streets NW. Briggs School, Twenty-second and E Streets NW. Toner School. Twenty-fourth and F Streets NW.

#### Connections between conduits (total, 4).

Twentieth Street and Park Road NW. Sixth and I Streets NE.1 Eighteenth Street between D and E Streets NW.

Eighteenth Street and New York Avenue NW.

#### Conduit extensions (total, 12).

Fourteenth and U Streets NW. Eighth and I Streets NW. Twelfth Street and New York Avenue Eighth and D Streets SE. Thirteenth and G Streets NW. Eleventh and G Streets NW:

Ninth and F Streets NW. Eighth and G Streets NW. Ninth and H Streets NW. Sixth and G Streets NW. New Jersey Avenue and F Street NW. Third and G Streets NW.

Built by Chesapeake & Potomac Telephone Co., under contract.

## 211

## OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

In making the above-mentioned connections and extensions, 6,837 feet of conduit (duct feet) and 12 manholes were built, the work being done by this department except where noted otherwise.

## Connections to the underground system, July 1, 1914.

Fire-alarm posts	361
Police-patrol posts	268
Cable-terminal posts	7
Schoolhouses	64
Fire department houses	28
Police station houses	13
Miscellaneous District buildings	-8
United States Government buildings	23
Private buildings	49
Cable poles.	88
-	
Total	909

Cable installed and withdrawn during the year and amount in service June 30, 1914.

INSTALLED.

						INGIALDED.								
	Sig	Signal.		Telephone.				Combination.	ď			Total.	el.	
Size of cable.		Conduc-		Conductors (Brown & Sharpe).	Conductors own & Sharpe).		Con	Conductors (Brown & Sharpe).	own & Sl	uarpe).		Conductors	Conductors (Brown & Sharps).	Sharpe).
	Cable.	No. 14, Brown &	Cable.	;	1	Cable.	Ž	No. 14.	Ž	No. 19.	Cable.	;	;	;
		one be		No. 19.	No.		Pairs.	Pairs. Conductors.	Patrs.	Conductors.		No. 14.	No. 19.	No. 22.
45 pair 25 pair 16 pair 11 pair 12 pair 10 pair 8 pair	Fed.	Free.	Feet.	Feet.	F cet	Feet. 10, 467 19, 888 2, 888 3, 000 12, 996 12, 996	N 000000000000000000000000000000000000	Feet. 5,800 386,740 46,128 7,104 7,104 103,968 103,968		26.7.280 26.7.280 26.7.280 26.7.280 26.7.280 26.7.280 103.880 12.880	764. 10, 487 1, 883 3, 990 12, 996	764, 256, 300, 240, 240, 240, 240, 240, 240, 240, 2	Feet. 7, 260 584, 510 40, 362 9, 472 36, 000 1, 830 106, 988	15 Sept.
Total						39, 317		590,756		783,616	39,317	590,756	783, 616	
						WITHDRAWN	AWN.							
10 pair.						950	۰	6, 590	۵	6, 590	<b>8</b>	6, 590	6, 590	
					IN BEI	IN BERVICE JUNE 30, 1914	'NE 30, 1	1914.						
50 pair 00 pair			2,310	007 691 6	2, 382, 300						7, 9, 5 10, 8, 6		007 691 6	2, 382, 300 462, 000
90 psir. 80 psir. 26 pair.						4,503	88	28, 800 270, 180	88	57, 600 460, 300	\$ 35 \$ 35 \$ 35 \$ 35 \$ 35 \$ 35 \$ 35 \$ 35	226, 800	, , , , , , , , , , , , , , , , ,	
						2,7867	83	111, 420 83, 680	\$8	148, 560 278, 500	2.4 2.5 2.5 2.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3	111, 83, 560	148, 560 278, 500	

3,065,700	15, 794, 944	9, 968, 984	689,688	11, 305, 184	*******	8,056,678		583,818	3,055,700	4, 489, 760	58, 261	1,912,306	47,609	Total
		461,932	115, 483	230, 966	-	461, 932	69	115, 483						elt.
	130,940	196,410	32, 735	130,940	2	196, 410	60	32, 735	***************************************		***************************************			pt.
		40, 232	0,00	22, 616	*	40, 232	•	0,654	***************************************			********		
		1, 128, 850	141, 107	1,128,836	•	1,128,856		141, 107					A	Tied
1		202,020	24, 032	240,620	0	240,620	0	24,062				11,400		gir
<u>:</u>		951,828	67, 471	662, 772	9	662, 772	9	55, 231			***********	289,056	12,240	patr
		84, 192	7,016	112, 256	00	84, 192	9	7,016				***************************************	**********	pair
-		671,538	25, 202	82,362	1	94, 128	00	5,883		2, 160	72	577, 410	19, 247	
-		87,904	5, 494	109,880	10	87,904	00	5, 494		-		:	***************************************	
:		373, 840	28,008	373,840	01	373,840	10	18,692		396, 640	9,916		**********	pair
1		458,000	36, 367	687,000	2	458,000	01	22, 900		673,350	13, 467		-	
:		1, 276, 220	63,811	2, 552, 440	8	1, 276, 220	10	63, 811		***************************************	***************************************			
		798,360	16,629	17, 220	15	17, 220	15	574		182, 160	3,036	781, 140	13,019	
		157,522	4, 633	148, 256	16	157, 522	17	4.633					200	
		713,010	23, 767	950, 680	8	713,010	15	23, 767						
		226, 260	7,542	377, 100	83	226, 260	15	7,542						40 Dair
		571,620	19,054	1, 143, 240	30	571,620	12	19,054			X			rate Traff
		248, 560	6,214	310, 700	R	248, 560	8	6.214				200,000	2,000	
		253,300	6,851							431 800	4 3 8	962 200	9 599	
21.6	944,000	200, 000	9 114	THE RESERVED TO SECTION.					7		2 114	The second second		
<u>:</u>	000		17.401	912,080	40	342,030	9	11, 401	211, 400	2 114	2,114			56 Pair

Amount of space occupied by cable installed and withdrawn during year and by that in service July 1, 1914.

		Sрасе оссир	ied by cable.	
Owner of space.	Laid without conduit during year.	Installed during year.	With- drawn dur- ing year.	July 1, 1914
District of Columbia.	Feet.	Feet. 6,652	Feet.	Fed. 16.35
Chesapeake & Potomac Telephone Co		25, 983 5, 653	659	<b>509, 324</b> 22, 174
Western Union Telegraph Co				1,5 <b>36</b> 7,1 <b>5</b> 6 1,015 159
Submarine cable	51	978		150 2, 116 2, 831
Total	51	39, 266	659	089,68

<sup>&</sup>lt;sup>1</sup> Under this name are included the conduits of all the companies controlled by this corporation.

#### Aerial cable in service June 30, 1914.

	Tele	phone.		Combination.					Total.	
Size of		Con-		Cond	uctors (Br	own &	Sharpe).		Conducto & Sh	rs (Brows arpe).
cable.	Cable.	No. 19, Brown	Cable.	N	o. 14.	N	o. 19.	Cable.		
		Sharpe.		Pairs.	Conduc- tors.	Pairs.	Conduc- tors.		No. 14.	No. 19.
25-pair 20-pair 15-pair 12-pair	Feet. 1,599	Feet. 79,950	Feet. 10, 130 1, 152 8, 625 9, 558	No. 10 10 6 6	Feet. 202, 600 23, 040 103, 500 114, 696	No. 15 10 9	Feet. 303, 900 23, 040 155, 250 114, 696	Fect. 11, 729 1, 152 8, 625 9, 558	Feet. 202, 600 23, 640 103, 500 114, 696	Feet. 383, 859 23, 049 155, 258 114, 696
10-pair 8-pair			890 852	5	8,900 6,816	5	8, 900 6, 816	890 852	8,900 6,816	8, 900 6, 816
Total	1,599	79, 950	31, 207		459, 552		612, 602	32,806	459, 552	692, 552

In service June 30, 1914, 6.21 miles of cable, containing 218.20 miles of conductor.

#### FIRE-ALARM SYSTEM.

Twelve new fire-alarm boxes were placed in service during the year, 11 public and 1 private, located as follows:

Public boxes.

No. 754, Conduit Road and W Street NW.
No. 775, Thirty-ninth Street and Reno Road NW.
No. 776, Forty-fourth Street and Murdock Mill Road NW.
No. 879, Thirteenth Street and Spring Road NW.
No. 923, Morris Road and West Street SE.

No. 1221, Ninth Street and New York Avenue NW.

No. 1614, Eighth Street and Florida Avenue NE. No. 1622, North Capitol and Channing Streets NW.

No. 1633, Seventeenth Street and Fort Drive NE.

No. 1817, Eighteenth and Kenyon Streets NW. No. 1818, Twentieth Street and Park Road NW.

#### Private box.

No. 1636, Washington Warehouse Co., 19 M Street NE.
Two private boxes, Nos. 365 and 368, located at 1800 F Street NW. and 1712 G
Street NW., were discontinued during the year.
During the year 12 fire-alarm boxes were changed from overhead to underground

connection.

#### Fire-alarm boxes in service.

	July	1—
	1913	1914
Connected by overhead wires:		
Public boxes.	91 35	20
Connected by underground wires: Public boxes. Private boxes.	847	359
Private boxes	79	84
Total	552	562

Each fire-alarm box was tested several times during the year, the contact points cleaned, and the mechanism thoroughly overhauled. This is done regularly once a month as far as possible. The total number of tests amounted to 6,011, being an average of 10.695 per box.

## Alarms received and transmitted:

Regular box alarms		 	 	 	
Alarms from telephone stati	ons	 	 	 	
Alarms from national auton	atic boxes	 	 	 	
Local alarms		 	 	 	
Second alarms	• • • • • • • • • • • • • • • • • • •	 	 	 	
Third alarms	. <b></b>	 	 	 	
Fourth alarms					
Fifth alarms		 	 	 	
Sixth alarms					

Total	1, 366
False box alarms	
False local alarms	19

## Alarms received by the month.

	Во	x.	Lo	cal.	
Month.	Number.	False.	Number.	False.	
luty 1913. August September October November Socomber	1 43 1	5 8 2 2 2 9	49 31 26 38 55 87	1 2 2 1	
Jamery . 1914. February	74 50	7 5 4 1 2 1	75 69 70 67 54 43	· 1	
Total	666	52	664	1	

Number of times boxes tested, 6,011.

#### POLICE PATROL SYSTEM.

The following changes and 14 new installations were made in the patrol system:

First precinct.—New installation, connected underground: Box No. 55, Seventh
Street and Massachusetts Avenue NW., placed on same post with box No 34 in Sixth

precinct.

Third precinct.—New installation, connected underground: Box No. 64, Madison Place and H Street NW. Changed from overhead to underground connection: Box No. 17, Twenty-second and E Streets NW.; box No. 21, Twenty-sixth and F Streets NW.; box No. 46, Twenty-sixth and D Streets NW.; box No. 51, Nineteenth and B Streets NW.; box No. 52, Twentieth and E Streets NW.; box No. 53, Twenty-second Street and New York Avenue NW.

Fourth precinct.—New installation, connected overhead: Box No. 125. Delaware

Avenue and K Street SW.

Fifth precinct.—New installation, connected underground: Box No. 28, Eighth and G Streets SE. New installation, connected overhead: Box No. 19, Half and I Streets SE. Change of location: Box No. 42, moved from Eighth and E Streets SE. to northeast corner of Eighth and D Streets SE.

The telephone system was changed in this precinct from a two-circuit registering and bridging system to a straight telephone service, each box being connected direct

to the precinct station by an independent circuit.

Sixth precinct.—New installation, connected underground: Box No. 18, John Mar-

shall Place and D Street NW.

Ninth precinct.—Changed from overhead to underground connection: Box No. 26, Sixteenth and B Streets NE.; box No. 34, Third and L Streets NE.; box No. 43, First and M Streets NE.

Tenth precinct.—New installation, connected overhead: Box No. 56, Kalmia Street and Beach Drive NW.; box No. 135, Riggs Road and District Line NW.; box No.

136, Blair Road and Rittenhouse Street NW.

Eleventh precinct.—New installation, connected overhead: Box No. 62, Howard Road near Potomac River SE.; box No. 123, Anacostia and Ridge Roads SE. Change of location: Box No. 121, moved from F Street SE., near the tracks of the Philadelphia.

Baltimore & Washington Railroad Co., to Anacostia Road and M Street SE.

Subprecinct, Tenleytown.—New installation, connected overhead: Box No. 25,
Klingle Road and Beach Drive NW.; box No. 31, Massachusetts and Nebraska Ave

nues NW.; box No. 65, Thirty-ninth Street and Reno Road NW.

Three old booth boxes were replaced by Gamewell wall boxes, located at Sheriff Road and Forty-fourth Place NE., Georgia Avenue and Butternut Street NW., and F Street SE. near tracks of Philadelphia, Baltimore & Washington Railroad Co. On July 1, 1914, the distribution of boxes among the precincts was as follows:

	Wall	boxes.			
Precinct.	Under- ground.	Over- head.	Booths.	Total.	
First Second Third Fourth Fifth Sixth Seventh Eighth Winth Tenth Eleventh Sleventh Sleventh Subprecinct, Tanleytown	31 22 45 21 22 25 21 24 24 23 35	14 13 4 18 14 31 13	1 2	######################################	
Total	278	108	6	393	

#### TELEPHONE SYSTEM.

The following 31 telephones were added to the two switchboards of the department during the year:

- 1 office of Commissioner Newman, room
- 1 office of Commissioner Siddons, room 508.
- 2 office of Assistant Engineer Commissioner Powell, room 308.
- 2 office of corporation counsel, rooms 419 and 425.
- 4 office of Board of Children's Guardians, rooms 331, 333, 335, and 337, 1 main, 3 extension.
- 2 office of public utilities commission, rooms 5 and 17.
- l office of superintendent of sewers, room
- (All of the above in the District Building.)

The following 6 telephones on these switchboards were discontinued during the year:

3 James Ormond Wilson School, 2 main, | 1 fire department, superintendent of l extension.

1 old Mott School.

1 electrical department garage.

1 office boundary sewer outlet chamber.

- 4 Juvenile Court building.
  1 office of purchasing officer at property yards, Tenth Street Wharf.
- 1 Sumner School building.
- 1 Cook School.
- 2 Business High School, 1 main, 1 extengion.
- 3 public schools storerooms, 1600 Eckington Place NE.

1 Western High School. 1 Normal School No. 2, Georgia Avenue and Euclid Street.

2 fire department repair shop, 1 main, 1 extension.

machinery.
1 police desk fifth precinct.

#### FRANKLIN SCHOOL SWITCHBOARD.

The following 5 telephones were added to this switchboard during the year: Franklin School building, 4 main, 1 extension.

## Number of telephones connected to the District system on July 1, 1914.

Offices in the District Building	154
Outside offices and institutions	78
Public schools	
Fire department	50
Police department, private branch exchange. Franklin School, private branch exchange.	47 95
Water department.	40
Police patrol service	399
Total .	007

There are 26 portable telephone sets in service, the property of the District of Columbia. These instruments are used by the fire department and the employees of the electrical department.

#### STORAGE-BATTERY SYSTEM

The number of cells of storage battery in service July 1, 1914, was as follows On fire-alarm circuits	: 1. 862
On patrol circuits. On local circuits.	226
Total	2, 174

#### POLES.

Under the authority of the act of Congress approved June 30, 1902, regulating the use of telephone wires in the District of Columbia, the Chesapeake & Potomac Telephone Co. have reported the following amount of work done during the fiscal year: Poles erected in streets within the prescribed area:

Line.....

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#### Poles erected, taken down, moved, etc.

	Eı	recte	4		lown		Mo	ved.	R pla	e- ced.	Re	set.	I cre	D- 836.		)÷
	Line.	Guy.	Anchor.	Line.	Guy.	Anchor.	Line.	Guy.	Line.	Guy.	Line.	Guy.	Libe.	Guy.	Line.	) ay
Chesapeake & Potomac Tele- phone Co	306 551 10 8	21 33 1	77 161 1	305 160 26 8 29	39 7 2	8 2	26	8	81	6	74		391 	26	16	
Washington & Great Falls R. R. Co. Columbia Ry. Co. Steam railroads.		1 4	4	28	4									1	28	
Total	958	65	233	556	52	10	26	3	81	6	74		446	32	44	1

## List of poles of all kinds July 1, 1914.

]:	Line.	Guy.	Tota
	558 297 5,818 5,285 1,063	15 1 635 139	6, 4 5, 4 1, 0
tomac Electric Power Co. stat Telegraph-Cable Co. ightwood Ry. Co. imbia Ry. Co. costia & Potomac Ry. Co. gostia & Potomac Ry. Co. creatown & Tenleytown Ry. Co.	356 340 461	4	8
gosta & Fotomac Ry Co.	86 304 208		3
shington & Baltimore Transit Co	30 158 202		
ital Traction Co shington & Glen Echo Ry. Co. an railroads. shington & Great Falls R. R. Co.	8 545 401	i	
	6,113	804	16,
The following tables show the amount of work performed by the electric-wiring inspection:  mits issued by the inspector of buildings authorizing electrical Buildings.  Machinery.	wirin	 	1, 1
Signs.	· • • • •		1, 3
mits issued by the electrical department:			
For inside electrical work.  For outside electrical work.  Temporary permits.  Without fee (includes permits issued by inspector of buildings		• • •	1, 5 2 1, 2
Quarterly. Gas lamps outside.		• • •	
No fee		• • •	
No fee		• • •	
•			3, 4
rtificates issued: Final Without fee.			3, 4
rtificates issued: Final		\$2,	3, 4 2, 8 2, 9 218.
rtificates issued: Final		\$2, 2,	2, 8 2, 8 2, 9 218. 844. 4.
rtificates issued: Final Without fee. Preliminary.  es paid to the collector of taxes: For permits. For certificates Miscellaneous		\$2, \$2,	2, 8 2, 8 2, 9 218. 844. 4. 39.
rtificates issued: Final.  Without fee. Preliminary.  es paid to the collector of taxes: For permits. For certificates. Miscellaneous. For 159 copies of Rules and Regulations, at 25 cents each.  mps and apparatus installed: Incandescent.		\$2, \$2, 2,	2, 8 2, 8 2, 9 218. 844. 4. 39.
rtificates issued: Final Without fee. Preliminary.  Ses paid to the collector of taxes: For permits. For certificates. Miscellaneous. For 159 copies of Rules and Regulations, at 25 cents each.  Sumps and apparatus installed: Incandescent. Arc lamps. Miscellaneous. Blank outlets.		\$2, 2, 5,	2, 8 2, 8 2, 8 218. 844. 4. 39. 105. 77, 2 9, 3
rtificates issued: Final. Without fee. Preliminary.  See paid to the collector of taxes: For permits. For certificates. Miscellaneous. For 159 copies of Rules and Regulations, at 25 cents each  samps and apparatus installed: Incandescent. Arc lamps. Miscellaneous.		\$2, \$2, 5,	2, 8 2, 8 2, 8 218. 844. 4. 39. 105.

Defective wiring installations repaired, reported by inspectors  Notices of defective wiring sent	257 1, 162 24 73 219
Work of inspectors of electric wiring from July 1, 1913, to June 30, 1914.	
Inspections in private buildings. Inspections in Municipal buildings Inspections in United States Government buildings. Inspections in theaters.	10, 277 166 15 480
Total inspections	10, 938

#### MISCELLANEOUS WORK.

This department prepared plans and specifications for and supervised the inteduction of electrical installations in the following municipal properties:

## Completed work.

### Police stations:

No. 1, repairs to cell-room lighting.

No. 3, additional lighting.

No. 4, wiring for garage. No. 6, wiring for garage. No. 7, wiring for garage. No. 8, wiring for garage.

No. 10, repairs to lighting system.

Engine houses:

No. 1, lighting system.

No. 8 (shop), alterations in power sys-

No. 16, additional wiring. No. 20, battery charging set; installa-

tion of trip circuit; fixtures.
No. 21 (No. 9 Truck), repairs and additional lighting.

No. 23, installation of switch.

Truck houses:

No. 2, lighting system. No. 4, lighting system. No. 5, repairs to lighting system (2 jobs).

No. 7, repairs to fixtures; additional lighting.

No. 5 Chemical Engine House, installation of trip circuit.

Fire department machine shop, light and

power system. Juvenile Court, wiring for desk fans. Jail, boiler room, additional lighting. Business High School, additional light-

ing. Franklin School:

Lighting, rooms S3, N3, and 4. Extension of lighting system.

J. O. Wilson Normal School: Lighting fixtures.

Alterations and additions, lighting. Armstrong Manual Training School:

Alterations and repairs to motors. Wattmeter installation.

#### Completed work—Continued.

Normal School No. 2:

Lighting fixtures.

Light and power system.

Eastern High School:

Target lights.

Additional lighting.

Western High School:

Stereopticon outlets. Additional wiring.

Public school storehouse, power service

Crematorium, installation of motors.

Home for Aged and Infirm, lighting sys-

Sewer department, Takoma substation,

lighting. Street cleaning stables SE., lighting in wagon shed.

Property yard, light and power system.

#### Work done by electrical department.

No. 23 Engine House, lighting trouble. No. 1 Chemical Engine House, lighting trouble.

Normal School No. 2, additional stage wiring.

Eastern High School, lighting trouble. Street cleaning stables NW., lighting trouble.

Eastern Market, lighting trouble.

Electrical department:

Automobile No. 2, lighting system. Automobile No. 4, lighting system. Jail, lighting trouble.

## Work in progress.

Wisconsin Avenue Manual Training School, wiring for power and additional light.

Washington Asylum Hospital, lighting system.

Tuberculosis Hospital, outside lighting.

Plans prepared, work not started. Engine houses: No. 7, lighting system. No. 11, lighting system. No. 18, repairs and extensions. No. 3 Truck House, lighting system. Police court, additional lighting. Police stations:
No. 1, lighting changes and additions.
No. 2, lighting system.
Business High School, additional lighting.

Franklin School, lighting third floor corridors.

Curtis School, lighting system.

Plans prepared, work not started—Contd.

Normal School No. 2, clock and bell sys-

J. R. West School, lighting alterations. Playground storeroom, additional lighting.

Convenience station No. 2, power equipment repairs.

Water department:

Garage and shops, light and power system.

Repair shops, light and power system. Smallpox hospital (3 buildings), lighting system.

During the year 30 electric meters were tested for the public utilities commis gion.

#### STATEMENT OF RECEIPTS AND EXPENDITURES.

## LIGHTING.

## Receipts.

Appropriation		\$391, 000, 00
Repayments by Baltimore & Ohio R. R. Co		344, 77
Renewments by Washington Terminal Co		3 810 90
Repayments by Georgetown Barge, Dock, Elevator & R. R.	Co	520, 28
Repayments by Philadelphia, Baltimore & Washington R. R	Co	6, 034. 41
Total	••••••	401, 710. 36
Expenditures.	•	
Mantle gas lighting:		
Washington Gas Light Co	\$165, 227. 00	
Washington Gas Light Co	34. 70	
		165, 192. 30
Georgetown Gas Light Co	10, 300. 40	
Deduction for defective service	25. 95	
		10, 274. 45
Incandescent electric lighting:		
Potomac Electric Power Co	102, 650. 18	
Deduction for defective service	525. <b>54</b>	
		102, <b>124</b> . <b>64</b>
Are lighting:		
Potomac Electric Power Co	83, 068. 40	
Deduction for defective service	435. 66	
		82, 632. 74
Street designation lighting:		
Washington Gas Light Co	4, 055. 30	
Deduction for defective service.	. 50	
		4, 054. 80
Georgetown Gas Light Co	249. 99	
Deduction for defective service	. 14	
•		249. 85
Potomac Electric Power Co		
Deduction for defective service	1. 50	
Lamp-posts, lanterns, globes, etc	• • • • • • • • • • • •	15, 567. <b>37</b>
Paints, oils, etc		83. 97
Travel expense.		<b>281. 13</b>
Labor pay roll.	<i>.</i>	4, 636. 71
Street signs, material, etc		1, 589. <b>62</b>
Erecting, moving, and taking down posts		1, 016, 06
Tools and hardware		<b>2</b> 82. <b>54</b>
Repairs to pavements	<i></i>	149. 84
Cartage.		<b>39</b> . 80

04-11	4154 11
Stable expense	\$156.11
Rent of storerooms.  Freight and express.	1, 440.00 47.20
Testing instruments	31.50
Tree trimming	166. 21
Electric current and gas	34.76
Care and maintenance of horses and vehicles, engineer stables	<b>73</b> 0. <b>2</b> 7
Car tickets.	34. 75
Miscellaneous	<b>6. 6</b> 5
Total	391, 465. 30
GENERAL SUPPLIES.	
Receipts.	
Appropriation	\$13, 500.00
Appropriation	135. 45
•	<del></del>
	13, 635. 45
Expenditures.	
Office expenses	907. 86
Telephone rental, etc	4, 396. 12
Purchase of three motor cycles	2, 018. 55 645. 00
Purchase and exchange of three bicycles	112. 50
Maintenance of four automobiles	1, 280. 04
Maintenance of three motor cycles.	284. 96
Maintenance of six bicycles.	35.00
Miscellaneous garage expenses	421. 67 358. 34
Storeroom expenses.	49. 70
Wire	778. 57
Batteries and battery supplies	644. 75
Instruments and apparatus	434. 91
Line supplies.	171. 30
Tools and hardware	44, 93 53, 12
Poles and cross-arms.	380.00
Paints	1. 75
Tool wagon	70.00
Gas and electric current	22. 53
Labor pay roll	277.75
Car tickets. Miscellaneous	90. 25 13. 46
and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	10. 10
PURCHASE AND ERECTION OF FIRE-ALARM BOXES,	13, 493. <b>06</b>
Receipts.	
Appropriation	\$2,000.00
Expenditures.	
Fire-alarm boxes	1 050 00
Lamp-posts, etc	1, 250.00 146.25
Labor pay roll.	128. 25
Conduit construction	57.00
Wire	148.54
Poles	22.00
Cable	119.00 17.73
Repairs to pavements	38. 75
•	
Total	1, 927. 52

#### EXTENSION OF POLICE-PATROL SYSTEM.

Receipts.	
Appropriation	<b>\$</b> 3, 000. 00
Repayments	3. 77
<u>-</u>	
Total	3, 003. 77
. Expenditures.	
Cable	937. 25
Lamp-posts, etc	224. 25
Wire	802. 05
Conduit construction	140.00
Conduit supplies	164. 04
Repairs to pavements	32. 39
	81. 70
Line supplies	
Poles	262. 60
Hardware	121.00
Instruments and apparatus	27. 28
Labor pay roll	138. 25
Total	2, 930. 81
WIRES UNDERGROUND.	
Receipts.	
	<b>67</b> 000 00
Appropriation	<b>\$7,000.00</b>
Repayments	962. 83
<del>_</del>	
Total	7, 962. 83
` <u> </u>	-
Expenditures.	
Cable	1, 376. 73
Lamp-poets, etc	1, 138. 70
Conduit construction	1, 401. 00
Conduit supplies	1, 351. 87
Conduit supplies.	
Repairs to pavements	565. 08
Wire	110.57
Hardware	31. 10
Instruments and apparatus	<b>4</b> 5. 00
Hauling	14. 03
Line supplies.	60.00
Traveling expenses	2. 86
Labor pay roll	993.00
Labor pay ton	990.00
Total	7, 089, 94
1 U.M	1,000.01
ADDITIONAL CABLES.	
Receipts.	
Appropriation	\$5,000.00
Repayments	11. 29
mepayments	11. 23
Total	5, 011. 29
	0, 011. 29
Expenditures.	
	4, 886. 97
Cable. Labor pay roll.	122. 50
Lander has a control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control	122. 00
Total	5 000 47
1001	5. 009. 47
Respectfully submitted.	
WALTER C. A.	LLEN.
Electrical	Engineer
Cent I I Sarran	<del></del> .

Capt. J. L. Schley,
Corps of Engineers, United States Army,
Assistant to the Engineer Commissioner, District of Columbia.

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## REPORT OF THE CHIEF CLERK OF THE ENGINEER DEPARTMENT.

WASHINGTON, D. C., October 1, 1914.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ended June 30, 1914:

Communications received, briefed, recorded, and indexed	13, 955
Vouchers prepared	448
Letters sent.	8,000
Contracts drawn and indexed	158
Bonds approved and indexed	315
The tables accompanying this report show	

The tables accompanying this report show—

1. The expenditures from general appropriations for forage, horses, wagons, carta, etc.

2. Statement of contracts entered into during the year.

3. Schedule of proposals received during the year.

Very respectfully,

DANIEL E. GARGES, Chief Clerk, Engineer Department,

Lieut. Col. Chester Harding, Corps of Engineers, United States Army, Engineer Commissioner, District of Columbia.

Statement of expenditures from general appropriations for forage, horses, wagons, carts, etc., fiscal year 1914.

Assessment and per cent work streets.	\$1 150.00
Assessment and per cent work, streets	95.00
Southwest schedule	28.00
Southeast schedule	101.00
Northeast schedule	104.00
Georgetown schedule	29.00
C Street Seventeenth to Eighteenth	26.00
C Street First to Fourth	54.00
Georgetown schedule. C Street, Seventeenth to Eighteenth C Street, First to Fourth Twenty-third Street, Kalorama Road to S Street Repairs to streets	39.00
Reneire to streets	1, 850, 00
Sidewalks and curb	45. 29
Sidowalks and such Patent Office	7.00
Sidewalks and curb old nost office	11.00
Sidewalks and curb, old post office.  Repairs to suburban roads.  Construction and repair, bridges.  Q Street Bridge.  Pennsylvania Avenue Bridge over Rock Creek.	291. 92
Construction and reneis bridges	153. 07
Office Dridge	410.00
Dannentsonia America Deides aren Daale Casale	120.00
Construction county made and suburban etracts	776.00
Construction, county roads and suburban streets	1, 713, 89
Construction, county roads and suburban streets.  Repairs to schools	1, 713. 89
Repairs to police stations	270. 11
Repairs to engine houses.	14. 24
Repair and storage building (are department).	
Repair to eighte houses.  Repair and storage building (fire department).  Electrical department (lighting).  Cleaning and repairing sewers and basins.  Main and pipe sewers.	705. 47
Cleaning and repairing sewers and basins	8, 723. 98
Main and pipe sewers	127.06
Nuburdan sewers	1, 104. 95
Assessment and per cent, sewers	276.60
Interior park	12. 10
Shelters, farmers' produce	28. 17
Surveyor's office	618.38
Surveys, old subdivisions	73. 11
New Central High School	255. 40
New M Street High School	113. 15
Congress Heights School, No. 111	25. 00
Birney School	37. 65
Parking commission	<b>2, 937. 38</b>
New M Street High School. Congress Heights School, No. 111. Birney School. Parking commission. General expenses, water department.	1, 916. 93
High service, water department	6, 644. 09
Street cleaning	233. 75
-	

31, 226. 19

## STATEMENT OF CONTRACTS.

## Contracts entered into by the District of Columbia during the fiscal year 1914.

#### 1. HIGHWAY IMPROVEMENTS.

		HIGHWAI IMPROVEMENTS.
No.	Name of contractor.	Nature of contract.
5480	G. B. Mullin Co	Grading Thirteenth Street NE., Rhode Island Avenue to Franklin
5490	George Hyman	Street. Grading Hamlin Street N.E., Twelfth to Thirteenth Streets.
5520	A. L. Guidone & Co G. B. Mullin Co	Constructing Q Street Bridge.
5528	G. B. Mulin Co	Grading Colorado Avenue.
	2	. SEWER CONSTRUCTION.
5441	George Hyman	Macomb Street trunk sewer, section 2.
5442 5450	Warren F. Brenizer Co	Naylor Road trunk sewer.  Bureau of Engraving and Printing sanitary sewer.
5454 1	George Hyman	Kenilworth outlet sewer.
5484	<b> </b>	Sewers in Sixteenth Street heights.
5487 5488 5499	do	Outlet sewers in Anacostia.
1200	do	Outlet, Good Hope trunk sewer. Sewer in Barry Place.
5506	do	I Illinois Avenna trunk sawas
8870	do	Section 5, Rock Creek main interceptor.
5513 5517	do. George Hyman. Warren F. Brenizer Co	Section 5, Rock Creek main interceptor. Sewers in Forty-fourth Street, etc. Sewers in Broad Branch Road. Sewers in Conduit Road, etc.
5518	do	Rewers in Conduit Road, etc.
5523	William F. Chan	
5624	Warren F. Breniser Codo	Poplar Point storm-water outlet sewer.
5685	<b>do</b>	Sewer in Seventh Street NW., between I Street and Mount Vernor Place.
5636	do	
5545	Roy B. Wenner	Sewer in Woodridge.
5546 5547	do	Sewers in Foxhall Road, etc. Pinehurst outlet sewer.
002/	Warren F. Breniser Co	rmanurs toutlet sewer.
	8.	MATERIAL AND HAULING.
5396	Geo. B. Mullin Co	Hanling stone and screenings.
5397 5398	Potomac River Clay Works	Terra-cotta sewer pipe.
5400	Sun Co	Asphalt paving cement. Portland cement.
5401	Thos. Somerville Co	Terra-cotta sewer pipa
5403	Moreantown Brick Co	Sewer invert brick.
5405 \$407	Lewis E. Smoot	Sand and gravel. Cast-iron water pipe.
540R	American Sewer Pipe Co	Terra-cotta sewer pipe.
5409 5416	Morris Iron & Steel Co Washington Asphalt Block	Miscellaneous castings.
	& Tile Co.	Furnishing asphalt paving block.
5443	North Carolina Granite Co	Granite curb.
5444	Lynchburg Foundry Co	Cast-iron water pipe specials.
5468 5468 5470	Fred I White	Cast-iron water pipe.  Miscellaneous castings.
1470	Richard W. Mann	Hauling for schools.
5475 5481	do	Limestone dust.
5486		Paving pitch. Sand and gravel.
5496 5492 5503	do	Gravel.
5600	United Brass Manufacturing Co.	Couplings and corporation cocks,
5404	The A. P. Smith Manufactur-	Corporation cocks, etc.
5406 5508		Brass fittings for water department. Union ells.
	4. BUIL	DING AND BUILDING REPAIRS.
	Samuel A. Carrer	Denoising frameses etc. in schools
\$300 \$404	Talcott & Poors	Repairing furnaces, etc., in schools. Heating system at Jefferson School.
<b>842</b> 1	l   Coberth, Hanes & White Co.,	Heating system, repair shop, fire department.
1416		Heating System, Congress Heights School.
8476 8479 8482	Melton Construction Co	i Storage Difficility for life department.
0171 £491	Metal Shelter Co	Shelter buildings at Tuberculosis Hospital. Birney School addition.
148	l Ido	Congress Heights School addition.
H	Skinker & Garrett	Alterations, etc., at District Jail.
	•	

## Contracts entered into by the District of Columbia during the fiscal year 1914—Continued.

## 4. BUILDING AND BUILDING REPAIRS-Continued.

No.	Name of contractor.	Nature of contract.
5502 5509 5512 5515 5522 5525 5526 5532 5534 5540 5542	Co. William Dall. George Hyman. Monarch Ventilator Co. William E. Mooney. Biggs Heating Co.	Boilers for District Jail.  Shelter shed for farmers' produce market. Furnace for orematorium.  Central High School, constructing Grading and excavating at site of Central High School.  Ventilating system at Force School.  Alterations at fire-department storage building.

#### 5. GENERAL SUPPLIES.

2	Cuyler & Mohler	Plumbing material.	
	Martin Wiegand	Lumber and furniture.	
		Der goods and familian	
	Lansburgh & Bro	Dry goods and furniture.	
	Albert L. Johnson	Hardware.	1
	Miller-Clagett Co	Groceries.	
	Dulany-Vernay Co	Stationery and kindergarten supplies.	
	Eureka Fire Hose Manu-	Fire hose,	
1	facturing Co.	PAGE TAXABLE TOWN	
	Lutz & Co	Saddlery and furniture.	
	Prang Co	Stationery, books, etc.	
	Lewis Flemer	Drugs.	
	Chas. Hyass & Co	Hardware.	
1	R. Carter Ballantyne		
5	Grove Lime & Coal Co		
1	W. B. Moses & Sons		
		Hardware.	
	J. Ross Collins		
3	L. P. Steuart & Bro	Ice and fuel.	
	Dulin & Martin		
5	Thos. Somerville Co		
	Eagle Pencil Co	Stationery.	
3	Mathers-Lamm Paper Co	Do.	
	Jas. B. Lambie Co		
11	Geo. F. Muth & Co		
	Remington Typewriter Co		
5	Fred A. Schmidt		
7	Mackall Bros	Drugs.	
		Stationers and dev goods	
	R P. Clarke Co		
3	Browning & Middleton		
)	Kraemer & Duehring		
4	Z. D. Gilman		
	Globe-Wernicke Co	Stationery and furniture.	
7	Chas. G. Stott & Co	Stationery.	
1	R. P. Andrews Paper Co		
	Hugh Reilly Co		
2	Guy, Curran Co	Dry goods.	
	Milton Bradley Co	Stationery, schoolbooks, etc.	
3	J. W. Hunt & Co	Paints.	
7	J. Robert Somerville	Oils.	
	A wmour & Co		
3	Armour & Co	Groceries, meats, etc.	
9	Barber & Ross	Hardware, paints, etc.	
ч	Julius Lansburgh Furniture	Furniture.	
л	& Carpet Co.	Vigneral and particular to	
	George M. Oyster	Milk and cream, furnishing.	
Œ.	Hugh Reilly Co	Oils.	
5	Louis Hartig	Hardware, plumbing material, etc.	
7	National Electrical Supply	Hardware, electrical supplies, etc.	
8	Standard Oil Co	Oils and lubricants	
П	R. H. Hollingshead Co	Do.	
	The A. S. Barnes Co.	Schoolbooks	
1	American Book Co	Do.	
	Chas Scribner's Sons	Do.	
7			
3	Chas. E. Merrill Co	Do.	
0	Howard A. Houser	Milk and cream, furnishing.	
1	Joseph H. Cranford		
3	John P. Agnew & Co		
4	W. M. Galt & Co	Forage.	
	Hoge & McDowell Co	Forage.	
7	American metal Co	Pig lead.	
	Washburn-Crosby Co	Forage.	
i I	R. Carter Ballantyne	School books,	
	C. C. Birchard & Co	Song books for schools.	
1	Mary E. Squire	Do.	

## Contracts entered into by the District of Columbia during the fiscal year 1914—Continued.

## 6. MISCELLANEOUS.

No.	Name of contractor.	Nature of contract.
301	Capital Towel Service Co	Laundry work.
308	The Foos Gas Engine Co	Oil engine, generator and switchboard.
413	Fred B. Miller & Bro	Installing public scales.
418	The Seagrave Co	Chemical engine and hose wagon, furnishing.
424	Ahrens-Fox Fire Engine Co	Do.
420	Thos. Dowling & Co	Auctioneer services,
430	Ahrens-Fox Fire Engine Co	Motor fire engine.
	A. Rice Son & Co	Horses for fire department.
433	Philip Weaver & Son	Lighters for use at workhouse.
463	Union Foundry Co	Lamp-posta.
466	Cassidy & Son Manufacturing Co.	Lighting fixtures, James Ormond Wilson Normal School.
471	Capital Electric Co	Lighting fixtures, Normal School No. 169.
472	A. P. Smith Manufacturing	Fire hydranta.
495	Standard Underground Cable	Combination cable.
5800	Western Electric Co	Do.
5507	F. E. Carpenter Co	Wire tence for water department.
511		Printing list of delinquent taxpayers.
1514		Lighters for workhouse.
316	Bullard Machine Tool Co	Boring and turning mill for water department.
5519	A G. Spalding & Bros	Playground equipment.
5530	Front Drive Motor Co	Two tractors on engine and truck of fire department.
5531	Buffalo Steam Roller Co	Road roller for surface division.
533	Aluminum Castings Co	Street-lamp frames.
5537	Gleason-Tiebout Class Co	Pieces of glass for street lamps.
538	Foran Foundry & Manufac- turing Co.	Lamp-post shafts, bases and casings.
5530	Ahrene-Fox Fire Engine Co	Rebuilding fire engine No. 12.
5541	American Seating Co	Assembly-hall chairs for Normal School No. 2.
6643	Samuel A. Gregory	Hot-air furnaces for schools.
5544	Union Foundry Co	Lamp-posts and accessories.
5548	Aumen Machinery Co	Milling machine for fire department.

## SCHEDULE OF PROPOSALS RECEIVED DURING FISCAL YEAR.

[Star (\*) indicates proposal accepted.]

## 1. HIGHWAY IMPROVEMENTS.

Proposals for grading Thirteenth Street NE., from Rhode Island Avenue to Franklin Street, and for grading Hamlin Street NE., from Twelfth to Thirteenth Streets.

## [Opened Sept. 8, 1913.]

	Price per of for gra	Price per cubic yard for grading—	
Bidders.	13th St. NE.	Hamlin St. NE.	
Geo. Hyman W. F. Breniser Co	Cents. 341 29	Cent/ * 23	
Austin Humphreys Construction Co Wm. F. Cush. G. B. Mullin Co.		* 23 27 33 28 27 25 49	
B. G. Gummel Lyons Bros	29 48	25 49	

## Proposals for the construction of concrete culverts in Hamlin and Franklin Streets NE., Washington, D. C.

## [Opened Sept. 8, 1913.]

			В	ldders.			
Items.	Warren F. Breniser.	Geo. Hyman.	R. J. Beall, jr.	Lyons Bros.	E. G. Gummel.	Chas. H. Tomp- kins.*	Joseph Caylor.
Culvert in Hamlin Street, be- tween 13th and 14th Sts. NE.: Class E concrete masonry,							
per cubic yard	\$8.00	\$8.00	\$8.60	\$7.95	\$7.00	<b>\$7.40</b>	\$7.67
Excavation, per cubic yard. Culvert in Franklin St. between 24th and 26th Sts., NE.:	22.00 .50	25.00 .60	24.50 1.00	25.00 .50	25.00 1.00	20.00 .50	21.50 .67
Class E concrete masonry, per cubic yard	8.00		9. 50		7.00	7.40	7.57
Vítrified briok masonry, per cubic yard Excavation, per cubic yard.	22.00 .50		25.00 1.20		25.00 1.00	20.00 .50	21.50 .73

## Proposals for construction of Q Street Bridge across Rock Creek.

## [Opened Oct. 28, 1913.]

,		Bidders.					
Items.	A. L. Gui- done & Co., 131 E. 23d St., New York, N.Y.	The United Construc- tion Co., EvansBidg. Wash., D.C.	Hoge & Luebkert Co. (Inc.), Dist. Nat. Bank Bldg., Wash., D.C.	Charles Fath & Co., Toledo, Ohio.	Davis Construction Co., Union TrustBidg., Wash., D.C.	C. B. Clari & Co., 20 S. Calverton Road, Bal- timore, Md.	
No. 1 per cubic yard	\$0.80 1.50 3.50	\$1.25 1.70 8.00	\$1.80 2.75 3.00	\$0.75 1.75 4.00	\$1.25 1.75 4.00	\$1. 25 2. 10 4. 00	
Bid A Bid B Bid C Bid D Bid E Bid F	158, 484. 00 155, 000. 00 145, 000. 00 155, 500. 00 153, 000. 00 144, 000. 00	173, 693. 00 160, 000. 00 141, 258. 00 167, 783. 00 151, 467. 00 143, 361. 00	189, 120, 00 174, 970, 00 156, 970, 00 168, 630, 00 154, 730, 00 152, 260, 00	164,000.00 159,000.00 150,000.00 167,000.00 162,000.00 153,000.00	195, 513.00 177, 042.00 151, 235.00 190, 472.00 166, 980.00 147, 996.00	196, 900.00 162, 800.00 187, 200.00 177, 400.00 152, 200.00 183, 300.00	
Item (a)per cubic yard Item (b)do Item (c)do Item (d):	8.00 8.50 11.00	6.90 11.50 16.00	7.00 10.00 10.00	8.50 10.00 17.00	9.86 10.51 11.16	8.00 9.00 12.00	
Per bid A per cu. foot Per bid Ddo Item (e):	2.15 2.10	2.50 2.25		2.75 2.85	2.70 2.26	3.50 3.10	
Per bids A and B. do Per bids D and E. do Item (f):	3.45 3.40	2.60 2.35		4.70 5.00	3. 78 2. 82	1.50 1.40	
Per bids A and B linear foot	18.00	15.00	••••••	21.00	20.78	24.50	
footItem (g):	17.75	13.00	· · · · · · · · · · · · · · · · · · ·	23.00	16.40	19.50	
Per bids A, B, Ceach. Per bids D, E, F. do Item (h):	90.00 86.00	82. <i>5</i> 0 82.00	125.00 100.00	105. 00 115. 00	162. 40 125. 21	165.00 130.00	
Per bids A, B, Cdo Per bids D, E, F, do	60. 00 59. 00	41.00 40.00	75. 00 50. 00	95.00 100.00	90. 42 69. 90	55.00 45.00	
Item (i), per bids B, C, E, F, per cubic foot	1.60	1.00	1.20	2.20	1.14	.90	
per cubic foot	1.80	1.25	1.50	3. 75	1.67	1.10	
per cubic foot	10.00	5.00	10.00	3. 75	7.20	6, 50	

## Proposals for grading sidewalk space on Girard Street NE., between Twelfth and Thirteenth Streets NE.

#### [Opened Nov. 5, 1913.]

Bidders.	Job com-	1	plete, per yard.
	plete, per cubic yard.	Public space.	Private space.
Geo. Hyman *	Cents. 23	Cents.	Cents.

## Proposals for grading in the District of Columbia.

## [Opened Mar. 5, 1914.]

	Bidders.					
Items.	John G. Hall.	Harper & Voigt.	Warren F. Bre- nizer Co.	G. B. Mullen.*	C. H. Pearl and R. J. Ver- million.	
Grading Colorado Ave., between 14th St. and Avemme of the Presidentsper cu. yd.  Price for material to be placed in Hamilton St. NW., per cubic yd  Price for material to be disposed of by bidder, per cubic yard	Cenis. 30} 26	Cenis. 34½ 55	Cenis. 27	Cenis.	Cents, 80 80	

## Proposals for making repairs to asphalt pavements, for the period July 1, 1914, to June 80, 1916.

## [Opened June 10, 1914.]

Items.	Baltimore Asphalt Block & Tile Co., Baltimore, Md.	The Cranford Paving Co.*1	Eastern Paving Co., Penn Square Building, Philadel- phia, Pa.
<ol> <li>Laying standard asphalt pavement (2½ inches asphalt surface, 2 inches binder before compression) with 6-inch concrete base;</li> </ol>			
(a)	\$1.79 1.74	\$1. 74 1. 66 <u>1</u>	\$1.72
(a)	.81 .77	. 68 . 62	:'n
(a)	.32 .30	. 27 . 26	.81
work, cuts, etc.): (a)	. 61 . 59	. 52 . 47	. 56
etc.); (e)	. 48 . 46	. 41 . 39	. 43
(a)	. 61 . 50	. 57 . 52	.60

Proposals for making repairs to asphalt pavements, for the period July 1, 1914, to June 30, 1916—Continued.

	Bidders.		
Item.	Baltimore Asphalt Block & Tile Co., Baltimore, Md.	The Cranford Paving Co.	Rastern Paving Co., Penn Square Building, Philadel- phia, Pa.
7. Laying asphalt binder for repairs, etc., within the space required by law to be kept in repair by street railway companies:  (a)	<b>\$</b> 0. 48 . 46	\$0. 46 . 44	\$0.50
(a)	1. 78 1. 72	1.67 1.63	1.69
(a)	1.03 .99	.97 .93	.97
(a)per cu.ft (b)do	.69 .65	. 55 . 51	.60

## 2. SEWER CONSTRUCTION.

## Proposals for construction of outlet, Naylor Road trunk sewer.

## [Opened July 17, 1913.]

		Bid	ders.	
Items.	Whiting- Turner Construc- tion Co.	Dorsey & Miller Co.	Warren F. Brenizer.*	Geo. Hyman.
Section No. 1.				
Ordinary excavation per cu. yd. Driving piling per lin. ft. Lumber in place. per 1,000 ft. b. m. Concrete invert masonry "B" per cu. yd. Concrete arch masonry "B" do. Vitrified-brick masonry do. Sewer-brick masonry do.	.21 55.00 8.20	6.90 6.90	\$0. 50 . 16 43. 00 6. 75 6. 75 21. 00 13. 00	\$1.50 .19 47.00 8.00 8.00 20.00 14.00
Section No. 2.	,			
Ordinary excevation	. 55 8. 20 8. 20 22. 00 14. 00		. 50 6.75 6.75 21.00 13.00	. 75 8. 00 8. 00 20. 00 14. 00

## Proposals for constructing section 2 of Macomb Street trunk sewer.

#### [Opened July 17, 1913.]

		Bidders.	
Items.	Warren F. Brenizer Co.	Whiting- Turner Construc- tion Co.	Geo. Hyman.*
Ordinary excavation	\$0.50 7.00 21.00 13.00	\$1.40 • 9.50 22.00 14.00	\$0.20 7.75 20.00 14.00

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## Proposals for construction of Kenilworth outlet sewer.

## [Opened July 31, 1913.]

	Sewer A. Sewer B.				
Bklder.	Special 1 unch diameter outlet	Sewer brick masonry laid.	Ordinary excavation.	Sewer brick masonry.	18-inch diameter pipe sewer laid.
W. F. Brenizer Co.*	\$1.20	\$16.00	\$1.00	\$14.00	<b>\$</b> 0. 75

## Proposals for construction of outlet, Good Hope Run trunk sewer.

## [Opened July 31, 1913.

	Section 1.		Section 2.	
Items.	Warren F. Brenizer Co.*	Dorsey Miller Co.	Warren F. Brenizer Co.*	Dorsey Miller Co
Ordinary excavation	. 16	\$0.90 .18	\$0,55	\$0.90
Lumber in place Concrete masonry B. Concrete masonry arch B. Vitrified brick masonry. Sewer brick masonry.	6, 80 6, %0 21, 00	45.00 6.90 6.90 21.00 14.00	6, 80 6, 80 21, 00 14, 00	6, 90 6, 90 21, 00 14, 00

## Proposals for construction of Bureau of Engraving and Printing sanitary sewer.

#### [Opened July 31, 1913.

Itams.	Bid	ders.
Items.	Warren F. Brenizer Co.	Geo. Hyman.*
Ordinary excavation.  Sewer brick masonry.  12-inch diameter pipe sewer.	\$0.70 13.00 .60	\$0.60 13.00 .55

## Proposals for construction of outlet trunk sewers C, D, and E.

## [Opened July 31, 1913.]

	Bidders.	
Items.	Warren F. Brenizer Co.*	Dorsey & Miller Co.
Ordinary excavation. Pling in place Lumber in place Concrete masonry B Concrete masonry arch B Vitrified brick masonry Sewer brick masonry.	48, 00 9, 00 9, 00 21, 00	\$1.00 .25 50.00 9.50 9.50 22.00

<sup>\*</sup> Bid same for each sewer.

## Proposals for the construction of Illinois Avenue trunk sewer, between Gallatin and Kennedy Streets.

#### [Opened Sept. 18, 1913.]

	Bid	ders.
Items.	W. F. Breniser Co.*	E. G. Gummel.
Ordinary excavation	\$0.60 7.00 21.00 14.00	\$0, 80 7, 39 23, 09 16, 00

Proposals for the construction of sewers in Sixteenth Street Heights, north of Walter Resi Army General Hospital.

#### [Opened Sept. 18, 1913.]

	Bidders.	
Items.	E. G. Gummel.	The Warren F. Breniser Co.*
Ordinary excavation. per cu. yd. Concrete masoury B. do. Vitrified-brick masoury. do. Sewer brick masoury . do. 24-inch diameter pipe sewer. per lin. ft. 12-inch diameter pipe sewer. do. 10-inch diameter pipe sewer. do.	25.00 17.00	\$0.50 7.60 22.00 14.00 1.10 .70

Proposals for the construction of section 5, Rock Creek main interceptor, between Klingle Ford Road and Pierce's Mill Road,

## [Opened Sept. 18, 1913. Bidder: The Warren F. Brenizer Co.\*]

Section A—sewer in open cut: Ordinary excavation.	per cu. vd 20.75
Concrete masonry B	do 8.00
Vitrified-brick masonry	
Sewer-brick masonry	do 14.60
Section B—sewer in tunnel:	
Excavation, per linear foot of tunnel.	14.00
For all masonry, per linear foot of sewer	8.59

Proposals for the construction of sewer in Barry Place, between Eighth Street and Sherman Avenue NW.

#### [Opened Sept. 18, 1913. Bidder: W. F. Breniser Co.\*]

Ordinary excavation	per cu. vd., \$0.80
Concrete masonry B	do 6.73
Vitrified-brick masonry	do 21.60
Sewer-brick masonry	do 13.00

Proposals for constructing storm-water outlet channel, northeast boundary sewer.

#### [Opened Oct. 23, 1913. Bidder: The Warren F. Brenizer Co.]

Section B. do 12.75	Section A	2 75 2 75
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NOTE.-All bids rejected.

## Proposals for the construction of sewer in Broad Branch Road.

#### [Opened Jan. 2, 1914.]

			Bidders.		
Items.	The Warren F. Brenizer Co.*	Wm. F. Cush.	E. G. Gummel.	Geo. Hyman.	R. J. Beall Construc- tion Co.
Ordinary excavationper cu. yd Sawar-brick masonrydo 10-inch diameter pipe sewerper lin. ft	14.00	\$0.95 15.00 .65	\$0.60 15.00 .55	<b>\$0.</b> 60 15. 00 . 90	\$0. 84 16. 00 . 65

Proposals for the construction of Poplar Point storm-water outlet to the established bulkhead line, Anacostia River improvement.

#### [Opened Jan. 2, 1914.]

	Bide	lers.
Items.	E. G. Gummel.	W. F. Brenizer Co.*
Ordinary excavation. per cu. yd. Piling in place. per lin. ft. Concrete masonry E per cu. yd. Sewer-brick masonry. do.	\$0. 50 , 25 6. 90 15. 00	\$0.70 .30 6.50 14.00

## Proposals for the construction of sewers in Conduit Road.

## [Opened Jan. 2, 1914.]

	Bidders.					
Items.	E. G. Gummel.	Geo. Hyman.	R. J. Beall Construc- tion Co.	The Warren F. Brenizer Co.*		
Ordinary excavation.         per cu. yd.           Concrete masonry E         do.           Sewer-brick masonry.         do.           18-inch diameter pipe sewer         per lin. ft.           15-inch diameter pipe sewer.         do.           12-inch diameter pipe sewer.         do.           10-inch diameter pipe sewer.         do.	\$1. 00 6. 00 15. 00 2. 95 . 75 . 65 . 65	\$0. 80 8. 00 15. 00 . 90 . 85 . 80 . 70	\$0, 79 10, 00 16, 00 .90 .90 .75	\$0.60 6.50 14.00 .90 .70 .65		

Proposals for the construction of Kenilworth service sewers, section No. 1, west of Kenilworth Avenue and south of Douglas Avenue.

## [Opened Jan. 2, 1914.]

	Bidders.				
Items.	F. G. Gummel.	Wm. F. Cush.*	W. F. Brenizer Co.	Geo. Hyman.*	
Ordinary excavation	\$1. 25 16. 00 . 65 . 60	\$0, 59 13, 00 .60 .55	\$0.70 14.00 .65 .55	\$0. 90 15. 00 . 70 . 60	

## Proposals for the construction of outlet sewer in Forty-fourth Street NW.

#### [Opened Jan. 2, 1914.]

Items.	W. F. Brenizer Co.	E. G. Gummel.	Geo. Hyman.*
Ordinary excavation	\$0.65 14.00 .75	\$1. 10 15. 00 . 85	\$0.65 13.00 .73

## Proposals for constructing service sewer in Foxhall Road.

#### [Opened May 11, 1914.]

	Bidders.					
Items.	R. B.	Warren F.	Wm. F.	E. G.		
	Wenner.*	Breniser.	Cush.	Gummel		
Ordinary excavationper cu. yd  Sewer brick masonrydo  12-inch diameter pipe sewerper lin. ft	\$0.65	\$0.55	\$0. 59}	\$1.00		
	18.00	13.00	13. 50	16.00		
	.36½	.60	. 60	L.00		

## Proposals for constructing service sewer in Wisconsin Avenue, Jenifer Street, Forty-second Place, and Forty-second Street.

## [Opened May 11, 1914.]

		Bidders.					
Items.	F. J. McGuire.	Warren F. Bren- izer.*	R. B. Wenner.	E. G. Gummel.	Geo. Hyman.	R. J. Beall Construc- tion Co.	Wm. F. Cush.
Ordinary excavation, per cu.yd. Sewer brick masonrydo	<b>\$0.</b> 70 <b>16. 00</b>	\$0, 45 13, 00	\$0, 65 18, 00	\$0, 85 15, 00	\$0.50 14.00	\$0.55 15.50	\$0.59 13.50
18-inch diameter sewer pipe, per lin. ft.	. 85	.80	.77	. 95	.75	8ö	. 75
15-inch diameter sewer pipe, per tin. it	. 75	. 65	. 70	.80	.65	.72	.70
12-inch diameter sewer pipe, per lin. ft	. 65	. 60	. 36	. 75	. 55	.60	.61

## Proposals for constructing service sewers in Woodridge, D. C.

## [Opened May 11, 1914.]

	Bidders.							
Items.	E. G. Gum- mel.	R. B. Wen- ner.*	Warren F. Bren- izer Co.	Geo. Hy- man.	F. J. Mc- Guire.	R. J. Beall Con- struc- tion Co.	Wm. F. Cush.	Lyons Brus.
Ordinary excavationper cu. yd  Sewer brick masonrydo  12-inch diameter pipe sewer, per lin. ft.  10-inch diameter pipe sewerdo	\$0.60 15.00 .60 .55	\$0.59 18.00 .36 .35	\$0. 45 13. 00 . 63 . 48	\$0.55 14.00 .65 .55	\$0.75 15.00 .65 .60	\$0.57 17.00 .65 .60	\$0. 62 13. 00 · . 64 · . 55	\$0.84 16.50 .86

## Proposals for constructing special deep service sewer in Seventh Street between I Street and Mount Vernon Place,

## [Opened May 11, 1914.]

	Bidders.				
Items.	W. F. Brenizer Co.*	R. J. Beall Construc- tion Co.	E. G. Gummel.		
Ordinary excavation	\$1.50 14.00 .70	\$1.59 14.00 .70	\$1.50 14.00 .75		

#### Proposals for constructing Bennings Road trunk sewer between the Anacostia River and Kenilworth Avenue,

#### [Opened May 11, 1914.]

		Bidders.				
Itema.	E. G. Gura- mel.	W. F. Bre- nizer.	R. B. Wen- ner.			
Ordinary excavation	15.00	\$1.75 14.00 1.20	\$3.00 18.00 1.00			

#### All bids rejected.

## Proposals for constructing the Pinehurst outlet sewer.

#### [Opened June 10, 1914.]

	Bid	iers.
ltems.	James W. Bean Con- tracting Co.	W. F. Bre- nizer Co.*
Ordinary excavation per cu. yd.  Concrete masonry D do  Hauling, placing, and banding special molded concrete arch per lin. ft  Sewer brick masonry per cu. yd.	\$0.56 8.35 .26 15.00	\$0.45 8.00 .17 15.00

## 3. HAULING.

## Proposals for moving boilers at the District of Columbia Jail.

#### [Opened Nov. 10, 1913.]

Bidders.	Job com- piete
C. H. Lavender, 517 Thirteenth Street NW. Merchants Transfer & Storage Co., 920–922 E Street NW.* Heine Safety Boiler Co., 1120 Pennsylvania Building, Philadelphia, Pa.	\$725.00 647.00 997.00

Proposals for hauling one portable school, including furnace, from the grounds of the Hubbard School to the Park View site.

#### [Opened Sept. 19, 1913.]

Bidders.	Job com- plete.
Littlefield, Alvord & Co., Twenty-sixth and D Streets NW.*.  Merchants Transfer & Storage Co., 920-922 E Street NW.*.	\$43.50 33.00

#### 4. BUILDING AND BUILDING REPAIRS.

Proposals for covering the vertical boiler and breeching at the Tuberculosis Hospital.

[Opened June 15, 1914.]

. Bidders.	Job com- plete.
Asbestos Covering Co	\$45.00 30.00

Proposals for retubing boilers in the Brightwood, Emery, Garnett, Grant, Peabody, and Wallach School buildings.

#### [Opened July 10, 1913.]

	Bidders.				
Items.	Weber & Thomas.	Cook- Kries & Co.		J. E. Hur- ley.	H. P. Boswell.*
Retubing boilers: Brightwood School Emery School Garnet School Grant School Peabody School Wallach School	206.10 206.10	\$157.00 427.00 328.00 273.00 427.00 372.00	\$108.00 279.00 220.00 219.00 209.00 244.00	\$110.00 278.50 209.00 209.00 205.50 239.50	\$99. 29 259. 25 194. 00 194. 00 190. 40 222. 80

Proposals for installing a heating and ventilating system for school No. 111, Congress Heights, D. C.

#### [Opened July 14, 1913.]

Bidders.	Job complete.
Coberth, Hanes & White Co.* Walter E. Hill & Co. Talcott & Poore W. G. Cornell Co. Vork Propheroine Co.	7,985 7,978 7,974
York Engineering Co	8, 686 7, 753

Proposals for furnishing and installing, complete, electric lighting fixtures, conduits telephone, clock and bell systems, Normal School No. 169, Georgia Avenue between Howard Place and Fairmont Street NW.

#### [Opened July 28, 1913.]

	Price complete.
National Electric Supply Co J. E. Taylor & Co. Carroll Electric Capital Electric Co.*	\$4,650.00 4,152.90
Carroll Electric	3,953.90

## Proposals for doing plumbing work at the Western High School.

#### [Opened July 23, 1913.]

	Bido	lers.	
Items.	Wm. Roth- well & Son.	Coberth, Hanes & White Co.	
Job complete, using fixtures of: J. B. Clow & Sons Wolff Manufacturing Co John Douglas Co J. L. Mott Iron Works Haines, Jones, Cadbury Co John Kelly & Bro	2, 525 2, 595 2, 652	\$2, 648 2, 486 2, 543 2, 618 2, 510 2, 818	

#### All bids rejected.

## Proposals for repairing boiler at the public library.

#### (Opened Aug. 1, 1913.)

Bidders.	Job complete.
H. F. Boswell. J. E. Hurley. Webber & Thomas*. G. W. Forsberg.	\$12.33 21.00 15.50
U. W. FORSDerg	28.00

Proposals for constructing a repair and storage building for the Fire Department, D. C., to be erected on North Carolina Avenue SE. between Sixth and Seventh Streets, adjoining Engine House No. 8.

## [Opened Aug. 12, 1913.]

Bidders.	Job complete.
John Brennan Skinker & Garrett A. C. Moess Construction Co. 8. H. Maddox & Co.	12, 24 16, 27
H. J. Montgomery. The Melton Construction Co.* McKay & Morris. W. E. Mooney. Upton-Smoot Construction Co. Burgess & Parsons.	12,63 11,26 11,88 11,64 12,00

## Proposals for alterations for accommodation of boilers and coal vault for the District Jail.

## [Opened Aug. 26, 1913.]

Bidde <b>rs</b> .		Work complete.
Skinker & Garrett*. Burgess & Parsons.		\$4, 419 5, 150
Skinker & Garrett* Burgess & Parsons. Wm. Rothwell & Son. W.E. Mooney. B. B. Knell.	• • • • •	5, 150 5, 200 5, 445 5, 200

# Proposals for the construction of an addition at the Congress Heights School (No. 111). [Opened Aug. 26, 1913.]

	Bidders.			
Items.	Melton Construc- tion Co.*	Skniker & Gar- rett.	Burgess & Par- sons.	W. E. Mooney.
For the work complete. Alternate A. Alternate B. Alternate C. Alternate D. Alternate E. Alternate E. Alternate F. Congress Heights and Birney School addition. Separate contracts at a combined price of.	- 560 - 78 + 248 - 110 - 56 +2,384	\$39,888 - 300 - 103 + 170 - 100 - 29 +3,400 72,000	\$40,200 -1,000 - 100 + 150 - 100 - 250 +3,000	\$39,152 -1,175 - 54 + 800 - 40 +3,064 71,577

Proposats for making alterations and constructing an addition to the Birney School Building (No. 127).

## [Opened Aug. 26, 1913.]

	Bidders.				
Items.	W. E. Mooney.	Skniker & Gar- rett.	Burgess & Par-	S. II. Maddox & Co.	Melton Construc- tion Co.*
Work complete Alternate A Alternate B Alternate C Alternate D Alternate E	-100 - 70 -100 - 40	\$32,988 -200 - 97 - 45 - 25 72,000	\$34,700 -125 -150 -200 -150 74,000	\$31,200 -118 - 40 -115 - 10	\$31,434 -180 - 87 - 36 65,947

## Proposals for making alterations at No. 4 engine house.

#### [Opened Sept. 4, 1913.]

Bidders.	Job com- t-lets.
Soper & McDonald, 318 Maine Avenue SW.  Barber & Ross, Eleventh and G Streets NW.*  Fred J. White, 462 Maine Avenue SW.	\$495.00 300.00 325.00

## Proposals for repairs to electric motor at the Powell and Cleveland Schools.

## [Opened Sept. 5, 1913.]

Bidders.	Price repairs to Powell School motor.	Price repairs to Cleveland School motor.
National Electrical Supply Co	\$50.00 *45.00	*\$10.00 15.00

## Proposals for retubing boiler in Curtis School.

#### [Opened Sept. 8, 1913.]

Bidders.	Job com- plete.
J. E. Hurley, 1219 Ohio Avenue NW. Webber & Thomas, Eleventh and Water Streets SW.  G. W. Forsberg, Eighth and Water Streets SW. H. F. Boswell, 1240 Seventh Street SW.*	\$156.00 162.49 140.00 139.45

## Proposals for repairing stack at the Henry School Building.

#### [Opened Sept. 8, 1913.]

Bidder.	Job com- plete.
J. E. Hurley *	\$93.00

Proposals for constructing two 110 by 54 inch radial-brick chimneys for the new boiler plant of the District of Columbia Jail, Washington, D. C., and for boiler plant, Home for the Aged and Infirm, Blue Plains, D. C.

#### [Opened Oct. 7, 1913.]

		Bidders.			
Items.	Alphons- Custodis Chimney Construc- tion Co.	H. R. Hein- icke (Inc.).*	M. W. Kellogg Co.		
For the 2 chimneys. For chimney at the District of Columbia Jail. For chimney at Home for Aged and Infirm.	\$3,610 1,950 1,660	\$3,285 1,6%5 1,600	\$3,747 2,129 1,718		

## Proposals for new boilers and appurtenances, Washington Asylum and Jail.

#### [Opened Oct. 24, 1913.]

	Bidders.					
Items.	Evans, Almirall & Co.	Crook- Kries Co.	York Engineer- ing Co.	Camden Heating Co.	Coberth, Hanes & White Co.	W. G. Cornell Co.
Item A, job complete	\$16,569 -1,274 - 300 - 125 - 800 -4,979	\$14,763 -1,110 - 375 - 150 - 625 -3,893	\$19,600 -1,262 - 330 - 175 - 577 -1,859	\$14,927 - 998 - 125 - 225 - 590 -3,767	\$16, 258 - 900 - 310 - 175 - 485 -2, 800	116, 490 -1, 484 - 400 - 200 - 700 -4, 450

All bids rejected.

Proposals for installing a heating and ventilating system for school No. 127, located on Nichols Avenue, between Franklin Street and Howard Avenue SE.

## [Opened Oct. 28, 1913.]

			Bid	ders.		
Items.	Coberth, Hanes & White Co.*	Talcott & Poore.	D. D. Condon.	W. G. Cornell Co.	King Heating Co.	Walter B. Hill & Ca.
Entire installation	\$8,620 450 65	\$10, 472 10, 182 10, 400	\$9,600 319 66	\$8,811 290 60	\$8, 819 225 50	85,511 236 0
battery with plain flat grates are substi- tuted for boilers covered by specifications	55		55	360	400	•

Proposals for installing a steam-heating system for fire department repair shop, on North Carolina Avenue, between Sixth and Seventh Streets SE.

#### Opened Oct. 28, 1913.]

Bidders.	Job com- plote.
D. D. Condon Coberth, Hanes & White Co.* King Heating Co. Talcott & Poore	\$1,25 1,663 1,385 1,777

Proposals for constructing a furnace or retort in the public crematory on reservation No. 18, at Twenty-first and B Streets SE.

## [Opened Nov. 10, 1913.]

Bidders.	Job com- plete.
Morse-Boulger Destructor Co. Atkinson-Morse Destructor Co.*.	\$2,600 2,400

Schedule of proposals for grill work at the Eastern High School.

## [Opened Nov. 14, 1913.]

Bidders.	Job com- pieta.
Fred S. Gichner A. F. Jores Soper & McDonald *	22,08

## Proposals for furnishing and installing two 125-horsepower boilers in the District of Columbia jail.

### [Opened Nov. 18, 1913.]

	Ite	m 1.	Ite		
Bidders.	Job com- plete.	Alternate proposition.	Amount to be deducted if certain items are omitted.	Alternate proposition.	Time of completion (working days).
The Babcock-Wilcox Co. Heine Safety Boiler Co. Crook, Kries & Co. E. Keeler Co.*	\$4,373 4,435 4,650 4,098	<b>\$</b> 3, 850	\$806. 00 766. 00 820. 00 1 3, 251. 00	\$806.00	75 60 75 75

<sup>1</sup> Price, deduction included.

#### Proposals for electric lighting system—Police court.

#### [Opened Dec. 13, 1913.]

Bidders.	Price complete.	Alternate A.	Alternate B.
P. de B. Weston Thos. J. Williams Carroll Electric Co.	120.00	\$25.00 140.00 93.00	\$9.50 140.00 82.50

All bids rejected.

Schedule of proposals for retubing two boilers at Eastern High School, No. 85.

## [Opened Dec. 15, 1913.]

I. E. Hurley	\$285.00
Webber & Thomas,	324.88
G. W. Forsberg	290.00
H. F. Boswell*	272.00

Proposals for constructing the Central High School Building, No. 173, between Eleventh Street, Thirteenth Street, Florida Avenue, and Clifton Street, Washington, D. C.

#### [Opened Dec. 15, 1913.—First letting.]

	Bidders.				
Items.	English Bros., Champaign, Ill.		E. C. Gerhard Building Co., St. Louis, Mo. (no deposit; letter of explanation with bld).	Arthur Cow- sill, Hibbs Building, city (no deposit).	
Price for building complete, as per plans and specifications.  Time of completion Alternate: A-add. B-add. C-add. D-add. E-add. F-adu.	\$1, 283, 000 1 674 1, 800 15, 000 1, 450 500 2, 500 1, 400	\$1,304,000 (2) 10,000 13,175 1,850 1,000 2,600 1,475	\$1,210,000 (*) 7,000 11,000 -1,375 400 2,200 1,300	\$1,443,000 (2) 11,000 14,000 2,200 400 2,400 1,800	

1 Working days.

2 Specified time.

Proposals for constructing the Central High School Building, No. 173, between Bleventh Street, Thirteenth Street, Florida Avenue, and Clifton Street, Washington, D. C.—Continued.

Items.	Bidders.			
	English Bros., Champaign, Ill.	Cramp & Co., 801 Deuckla, Bullding, Philadelphia, Pa.	St. Louis, Mo.	Arthur Cow sill, Hibbs Building, city (no depost).
Alternate—Continued.				
G-deduct	\$1,000	\$900	\$1,200	
H—deduct.	12,000	11,000	1 12,000	} 12.5
I—add	800	825	12,750 600	י יי
J—deduct	600	650	900	
K—deduct	50		30	į 1
L—add	2,400 10,000	1,000	1,000 10,000	1,9
	1 '	10,300	14,500	7,
N—deduct	5,500	5,000	5, 250	<b>}</b> 8,0
O—deduct	6,000	4,800	4,500	4,0
P—deduct	4,000	4,000	1 4,000	8,:
Q <del>. a</del> dd	10,000	5,920	4,000	9,
R—add	40,000	30,000	26,000	27,6
	Bidders.			
Items.	The Conners Bros. Co., 157 Plain Street, Lowell, Mass.	William Dall, 501-504 Mar- ion Building, Cleveland, Ohio.	The Norcross Bros. Co., Worcester, Mass.	P. F. Gorn ley Co., Union Tru Building, city.
rice for building complete, as per plans and specifications	\$1,409,000 (*)	\$1,328,750 (*)	\$1,456,789 (*)	\$1,299,(
A—add	10,500	7,590	7,600	4
B-add	5,000	9,200	13,500	12,
C-add	2,500 1,000	2,000	1,500 400	2,
1)—800				1
D—sdd E—sdd	8,000	2,750	900	
E—edd F—edd	8,000 1,700	2,750 1,540	1,550	1,
R—add F—add G—deduct	8,000 1,700 750	2,750 1,540 950	1,550 1,200	1, 1,
E-edd F-add G-deduct H-deduct I-add	8,000 1,700 750	2,750 1,540	1,550	1, 1, 13,
E—add F—add G—deduct H—deduct I—add J—deduct K—	8,000 1,700 750 1,500	2,750 1,540 950 11,500	1,550 1,200 1,400	1, 1, 13,
R—add F—add G—deduct H—deduct I—add J—deduct	8,000 1,700 750 1,500 1,000	2,750 1,540 950 11,500 800	1,550 1,200 1,400 785	1, 1, 13,
E-edd F-add G-deduct H-deduct I-add J-deduct K- Add Deduct L-add	8,000 1,700 750 1,500 1,000 500 250	2,750 1,540 950 11,500 800 575 125	1,550 1,200 1,400 785 800	i, i, is,
R-edd	3,000 1,700 750 1,500 1,000 500 250 2,500 11,000	2, 750 1, 540 950 11, 500 800 875 125 2, 750 8, 500	1,550 1,200 1,400 785 800 125 1,375 24,000	1, 1, 13, 14,
E-edd F-add G-deduct H-deduct I-add J-deduct K- Deduct L-add J-deduct N- N-deduct	3,000 1,700 750 1,500 1,000 250 2,500 11,000 5,000	2,750 1,540 960 11,500 800 575 125 2,750 8,500 4,750	1,550 1,200 1,400 785 800 125 1,375 24,000 5,100	1, 13, 13, 14, 10, 3.
E-add F-add G-deduct H-deduct I-add J-deduct K- Add Deduct L-add M-deduct N-deduct N-deduct O-deduct D-deduct	3,000 1,700 750 1,500 1,000 250 2,500 11,000 5,000 4,500 4,250	2,750 1,540 960 11,500 875 125 2,750 4,750 4,750 5,750 3,586	1,550 1,200 1,400 785 800 125 1,375 24,000	1, 12, 14, 16, 3, 3,
E-edd F-add G-deduct H-deduct L-add J-deduct K- Deduct L-add Deduct N- Deduct L-add M-deduct N- Deduct	3,000 1,700 750 1,500 1,000 500 250 2,500 11,000 5,000 4,500	2,750 1,540 960 11,500 800 875 125 2,750 8,500 4,750 5,750	1,550 1,200 1,400 785 800 125 1,375 24,000 8,100 4,000	1, 1, 13, 14, 19, 3,

<sup>&</sup>lt;sup>2</sup> Figures.

<sup>8</sup> Specified time,

Proposals for constructing the Central High School Building, No. 173, between Eleventh Street, Thirteenth Street, Florida Avenue, and Clifton Street, Washington, D. C.— Continued.

	Bidders.			
Items.	H. N. Leighton Co., Minneapolis, Minn.	John T. Brady & Co., 103 Park Avenue.New York, N. Y.	James L. Parsons, 816 Union Trust Building, city.	George A. Fuller Co., Munsey Building, city.
Price for building complete, as per plans and specifications. Time of completion	\$1,293,869 646	\$1,269,000 1 500	\$1,415,000 ( <sup>2</sup> )	\$1,339,000 ( <sup>3</sup> )
Alternate: Aadd Badd Cadd	8,976 2,500	6, 200 8, 600	10,750 12,500 1,500	6,000 14,000 1,700
D—add E— Add Deduct		250 2,000	750 2,500	900 2,600
F—add. G—deduct. H—deduct.	1,450 12,946 12,410	1, 850 1, 550 13, 500	1,300 1,300 13,000	1,500 1,000 12,000
I—add J—deduct K—	720 575	800 600	750 750	900 750 50
DeductL—add	2,460	100 1,800 5,000	1,000 12,000	1,500 10,500
N—deduct. O—deduct. P—deduct. Q—add	5, 480 5, 940 3, 419	5,000 4,000 3,600 10,000	4,750 4,000 4,800 5,000	6,000 6,000 3,500 5,500
R—add	33,689	45,000	26,000	24,000

<sup>1</sup> Working days.

-Explanation of alternates on above schedule:

- Note.—Explanation of alternates on above schedule:

  Alternate A.—If the District of Columbia does not furnish the matt face brick, the contractor will furnish same in accordance with specifications.

  Alternate B.—If wood block flooring is substituted for the finished wood floor in all corridors above the ground floor and in the library over front entrance.

  Alternate C.—If metal weather stripping is included.

  Alternate D.—If "Mill White" is substituted throughout where water paint is specified as called for under "Painting."

  Alternate E.—If Crowe stokers are used in place of Jones stokers.

  Alternate E.—If Vento" heaters are used in place of brick settings.

  Alternate G.—If "Vento" heaters are used in place of wrought-iron pipe coils.

  Alternate I.—If at washers are omitted.

  Alternate I.—If a Cochrane metering feed water heater is used.

  Alternate I.—If a proved rubber-covered whis is used in place of 30 per cent Para rubber covered.

  Alternate I.—If a los class reflectors are used in place of Holophane reflectors.

  Alternate I.—If sel-winding secondary clocks are used in place of minute-interval clocks.

  Alternate I.—If the painting of all plaster walls and ceilings throughout the building as specified under "Painting" is omitted.

  Alternate V.—If the vacuum cleaning system is omitted.

  Alternate V.—If the laundry machinery, the marking machine, the key boards, tags, and pins, trucks, and fiber boxes as specified under "Gymnasium apparatus" are omitted.

  Alternate Q.—If "Argentine" or "Carara" polished white glass is used throughout for toilet and shower bath partitions instead of Tennessee marble, as specified under "Plumbers' marble work."

  Alternate R.—If the common brick are furnished by the contractor, instead of the Occoquan or District brick mentioned in the specifications.

  All bids rejected.

<sup>\*</sup>Specified time.

<sup>120</sup> months

Proposals for construction shelters for farmers' produce market, between Tenth and Twelfth,

B and Little B Streets NW.

#### [Opened Dec. 29, 1913.]

Bidders.	Price complete for 27 bents of shed.	Price per bent for M additional bents,
H. J. Montgomery	\$9,000.00	\$321.6
W. E. Mooney *.		330.0
P. F. Gormley Co.		347.0
Arthur M. Poynton		350.6
Chesapeake Iron Works	10, 198. 00	370.0
C. A. Schneider Sons.		341.0
John A. Schneider Iron Co.		390.0
W. H. McCray		345.
Geo, E. Wyne		325.
Martin & Brown		330.
Arthur Cowsill		312
Burgess & Parsons		350.
Skunker & Garrel Adrian H. Aylor		316.0 355.0
Wm. Rothwell & Son.		404
Wm. B. Upton		328
Penn Bridge Co.		32

## Proposals for installing stereopticon circuit in the John Eaton School.

#### [Opened Jan. 15, 1914.]

Bidders.	
Carroll Electric Co. National Electrical Supply Co. Thos. J. Williams *	\$42.50 51.00 40.00

## Proposals for doing concrete and brick work at No. 6 Engine House.

#### [Opened Jan. 24, 1915.]

Bidder.	
Fred Drew*	\$275.00

Proposals for furnishing and erecting ironwork, etc., at No. 6 Engine House, District of Columbia Fire Department.

## [Opened Jan. 24, 1914.]

Bidders.	Job com- plete.
Soper & McDonald *	\$588.00
Soper & McDonald *. Fred S. Gichner C. A. Schneider Sons. Martin & Brown	1, 133.00 890.00

Proposals for installing electric light and power systems in machine shop for fire department, located on North Carolina Avenue SE., between Sixth and Seventh Streets SE.

#### [Opened Feb. 9, 1914.]

Bidders.	Job com- plete.
The Carroll Electric Co National Electrical Co.*	\$823.00
National Electrical Co.*	795.00

Proposals for excavating and grading site and athletic field for Central High School No. 173, between Eleventh and Thirteenth, Florida Avenue and Clifton Streets NW.

#### [Opened Mar. 2, 1914.]

Bidders.	Job com- plete.
David M. Andrew Co	. 63,900.00 . 49,000.00 . 49,449.00 . 69,000.00

Proposals for constructing the Central High School Building, No. 173, between Eleventh Street, Thirteenth Street, Florida Avenue, and Clifton Street NW.

#### [Opened Mar. 2, 1914—Second letting.]

[Open	ed Mar. 2, 1914—	second letting.		
	Bidders.			
Items.	P. F. Gormley Co., Union Trust Building, Washington, D. C.	Hiram Lloyd Building & Construction Co., 803 Odd Fellows Build- ing, St. Louis, Mo.	English Bros., Ahern's Build- ing, Cham- paign, Ill.	The Nercross Bros. Co., Woroester, Mass.
Price building complete as per plans and specifications.	\$1,043,715 (1)	\$1,117,000 (1)	\$1,013,000 2 674	\$1,106,600 (¹)
A, add. E, add. G, deduct. J, deduct.	3,000 1,000	10,500 2,800 1,000 800	. 7,280 2,500 1,000 600	7,600 3,400 600 600
M, deduct	10,000 26,400 2,500 1,600	13,000 27,000 3,000 1,000	10,000 26,000 3,000 1,500	10,000 27,000 3,500 1,200
U, deduct. V, deduct. W, deduct. X, deduct.	* 2,859	3,900 1,500 1,200	3,900 1,600 200	3,500 100 2,000 200
			Bidders.	
Items.		Geo. A. Fuller Co., Munsey Building, Washington, D. C.	John T. Brady Co., 103 Park Avenue, New York.	E. C. Gerhard Building Co., 518 Victoria Building, St. Louis, Mo.
Price building complete as per plans and Time of completion.	d specifications	\$1,042,000 (¹)	\$1,019,000 2 500	\$1,017,000 (¹)
A, add. E, add. G, deduct. J, deduct.		6,000 2,600 1,000 700	12,000 2,000 1,072 2,200	6,600 2,000 975 700
M, deduct R, add S, deduct T, deduct	••••••	10,900 24,000 4,000 1,700	10,000 30,000 3,000 1,800	12,000 26,000 3,900 1,700
U, deduct. V, deduct		3,500 500	1,900	600 3,500

<sup>1</sup> Specified.

Working days.

Proposals for constructing the Central High School Building, No. 173, between Eleventh Street, Thirteenth Street, Florida Avenue, and Clifton Street, NW.—Continued.

	Bidders.		
Items.	William Dall, 501-504 Marion Building, Cleveland, Ohio.*	Cramp & Co., 801 Denckia Building, Philadelphia, Pa.	W. A. Chester- man, 1007 West Broad Street, Richmond, Va.
Price building complete as per plans and specifications Time of completion	\$994,000 1 425	\$1,010,000 (²)	\$1,180,000 ( <sup>2</sup> )
A, add	8,500	10,000	10,500
E, add	2,000	300	3,150
G, deduct	500 700	900 650	700 700
M. deduct	9,000	10,000	15,000
R, add.		27,000	28,000
8. deduct.	4,000	5,000	3,610
T, deduct	1,350	1,400	1,600
U, deduct	2,000	4,000	3,700
V, deduct	1,500		3,000
W, deduct.	3,000	650 8 400	2,000 200
X, deduct	500	• 400	

1 Working days.

<sup>2</sup> Specified.

4 Add

Note.—Explanation of alternates mentioned on above schedule.

Alternate A.—If the District of Columbia does not furnish the mat face brick, the contractor will furnish same in accordance with specifications.

Alternate E.—If Crowe spokers are used in place of the stokers specified, add.

Alternate G.—If "Vento" heaters are used in place of wrought-fron pipe coils, deduct.

Alternate G.—If the painting of all plaster walls and ceilings throughout the building as specified under "Painting" is omitted, deduct.

Alternate R.—If the common brick are furnished by the contractor instead of the Occasion of District

Alternate R.—If the common brick are furnished by the contractor, instead of the Occoquan or District brick mentioned in the specifications, add.

Alternate S.—If all cut stone in the two light courts is omitted, and the brick pilaster treatment in the

Alternate S.—If all cut stone in the two light courts is omitted, and the brick pilaster treatment m to courts eliminated, deduct.

Alternate T.—If the ash hoist is omitted, deduct.

Alternate V.—If the look-llowatt generator unit is omitted, deduct.

Alternate V.—If turbo generators are substituted for engine-driven generators specified, deduct.

Alternate W.—If wood base as specified for classrooms is substituted for marble base throughout the corridors (retaining marble in the vestibules and stair halls), deduct.

Alternate X.—If cast-iron grilles over the warm-air inlets throughout the building (except the auditorium) are replaced with diffuser blades and wood trim, deduct.

Proposals for making alterations and repairs to repair shop of fire department.

#### [Opened Apr. 17, 1914.]

	Work complete.
Skinker & Garrett The Melton Construction Co. (Inc.) Wm. Rothwell & Son W. E. Mooney *	\$1, 427.00 1,090.00 1,190.00 1,041.00

Proposals for piping systems, etc., for new boiler plant, Washington Asylum and Jail. [Opened May 11, 1914.]

	Bidders.		
Items.	West End Heating & Eng. Co.	Biggs Heating Co.*	W. G. Cor- nell Co.
For the work complete  Deduction from price for omitting 24-inch steam line, branches, etc.,	\$2,798.00	\$2, 235. 00	\$2,380.00
from tunnel end to trape, engine, washer, etc., in east wing of jail, also return lines from this apparatus in east wing. Deduction from price for blanking 8-inch header at C and omit	197.00	<b>126.</b> 00	87.00
5-inch branches to Keeler bollers, omit boller feed, cold-water and blow-off piping to two Keeler bollers.	641.00	438.00	209. 80

## Proposals for furnishing boiler for engine house No. 25.

#### [Opened May 20, 1914.]

Bidders.	Price complete
American Radiator Co. D. D. Condon * The Talcott-Poore Co.:	
For Royal boiler For Kripps boiler Hart & Crouse Co.  Spencer Heater Co.	479. 0 844. 0 379. 7 437. 4

Proposals for furnishing and installing gas fixtures in the Congress Heights school building.

#### [Opened May 22, 1914.]

Bidders.	Price complete.
C. A. Muddiman & Co. The Eimer H. Catlin Co.: * Sample 84.	\$87.50 26.50
Sample 207. O. R. Evans & Bro.	38.30 27.60

Proposals for removing old frame school building from the grounds of the Birney School, No. 127, and doing plumbing and brick work.

#### [Opened June 17, 1914.]

Bidder, Sidney L. Hechinger:	
Fer doing all work called for in specifications.  Alternate added by Mr. Hechinger "if granite steps should be desired" (in place of cement	\$1,445,00
Alternate added by Mr. Hechinger "if granite steps should be desired" (in place of coment	•-,
with safety treads)	275, 00
	2.5.00
Rid released	

#### 5. MISCELLANEOUS.

Proposals for furnishing, delivering, and erecting steel fence at Willow Tree Park, Square 554.

#### [Opened June 25, 1914.]

Bidders.	Work complete.	Alternate.
The Enterprise Iron Works. A. F. Jorss. A. F. Jorss. A. F. Jorss. A. Spieden Spieden. Spieden & Jorss. Fred. S. Gichner* Newman Blacksten Co. C. A. Schneider's Bons. F. E. Carpenter (O. Rudolph Gersmann (Inc.). Van Jorn Iron Works. Belmont Iron Works. The William Bayley Co.	3,174.00 4,160.00 2,558.00 2,589.25 2,487.30 4,968.00 3,838.20 2,889.00 3,937.50 4,766.00 4,480.00	\$2, 273, 74 1, 974, 00 2, 530, 90 1, 516, 00 1, 477, 75 1, 489, 32 3, 081, 00 2, 197, 44 1, 684, 00 2, 282, 00 2, 20, 00 2, 232, 00 1, 950, 00
Fred 3. White. F. P. Smith Wire & Iron Works. Soler & McDonald.	2,896.00 4,273.00 3,100.00	1,773.00 2,643.00 1,792.53

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### Proposals for making sewer and water connections at Nos. 57 and 59 N Street SW.

#### [Opened June 8, 1914.]

Bidders	Jobs complete.		
Didders	57 N Street.	59 N Street.	
Isadore Freund	\$246.00 157.00 145.00	\$193.00 180.00 177.00	

Proposals for making sewer and water connections at Nichols Avenue and Trenton Place SE.

#### [Opened June 8, 1914.]

Bidders.	Job com- plete.
Inadore Freund Coberth, Hanes & White Co.*	\$209.00 150.00 188.00

#### Proposals for making sewer and water connections at 1829 W Street SE.

#### [Opened May 6, 1914.]

Bidders.	Job com- plete.
William E. Weigel *	\$148.00
Maurice J. Colbert	186.00 154.00
	1

#### Proposals for venting sink at 1209 Wisconsin Avenue NW.

#### [Opened July 28, 1913.]

Bidders.	Job com- plete.
Coberth, Hanes & White Co	\$21.00 27.50
Samuel Artz. Foley & Curtin The E. F. Brooks Co. Maurice J. Colbert.	42.00 27.13 42.00

#### All bids rejected.

#### REPORT OF THE WHARF COMMITTEE.

Washington, September 24, 1914.

SIR: The wharf committee has the honor to submit the following report of its operations for the fiscal year ending June 30, 1914:

Accompanying is a list of wharf property now under lease on the Potomac River, the Anacostia River (or Eastern Branch) and James Creek Canal.

The rentals received from Potomac River wharves during the year amounted to \$23,706.20; from the Anacostia River, \$1,088.25; and from the James Creek Canal frontage, \$1,547.75, making the total amount received during the year \$26,342.20.

#### AVAILABLE WATER FRONTAGE.

The actual water frontage in the District of Columbia, with the exception of canals devoted to commerce, is about 2 miles. The total available water frontage, exclusive of canals, which is practicable of commercial development, is about 18 miles; this frontage, however, includes the portion set apart for parks and purposes of of the United States-about 8 miles.

#### WHARVES ALONG THE WASHINGTON CHANNEL.

The largest amount of wharf property is that along the Washington Channel. This has a total frontage on the city side of 9,275 linear feet, of which 4,675 linear feet, between the grounds of the War College and the south curb line of N Street, is under the jurisdiction of the Chief of Engineers, United States Army, and the remaining 4,600 feet, between the south curb line of N Street south and Fourteenth Street SW.,

is under the jurisdiction of the Commissioners of the District of Columbia.

The leases for these wharves are generally for a period of five years, expiring March 15, 1918. The basis of rental is a net return of 4 per cent on the estimated value of the wharf property, with the requirement that the lessee shall make improvements and repairs. No appropriation has ever been made for making a general improvement of this water frontage, nor for dredging adjacent to the wharves, and the wharf property, particularly the piling structures, is deteriorating rapidly. An estimate of \$1,000 has been submitted to the commissioners for the purpose of making surveys, plans, and estimates for the general improvement of this frontage.

Along the frontage are located the harbor police station, the dock of the harbor boat, the house and dock of the fire boat, the District morgue, two District property yards,

and the municipal fish wharf and market.

#### MUNICIPAL FISH WHARF AND MARKET.

In the District appropriation act for the fiscal year 1915 an appropriation of \$50,000 was made for reconstructing the wharves operated in connection with this market, and plans and specifications therefor are in course of preparation. The market buildings are under the control of the superintendent of weights, measures, and markets.

#### WHARVES ALONG THE ANACOSTIA RIVER.

This frontage is largely undeveloped owing to the uncertainty of ownership of the

abutting land and riparian rights.

Seven leases to private parties have been made for land abutting on the river at the foot of streets where there is no question of title involved, and there are also located on this frontage the sewerage pumping station and wharf.

The matter of establishing title to the wharf property along this frontage is under

investigation by the Attorney General.

#### WHARVES ALONG THE GEORGETOWN CHANNEL,

All the wharf property along this frontage is under private control with the exception of the foot of streets. Two leases have been entered into with private parties, one for the foot of Thirty-third Street and one for the foot of G Street.

#### JAMES CREEK CANAL.

This canal, which formerly extended from G Street to the Anacostia River, has been filled to N Street, and the bridges which formerly crossed the canal have been removed. From N to P Streets, a distance of about 1,000 feet, the frontage on both sides of the canal is under lease. From P Street to the outlet of the canal, a distance of 3,000 feet, it extends along the grounds of the War College and Engineer School, This portion of the canal is in need of dredging, but until a determination is made as to whether the canal is to be entirely filled, no estimate is submitted for dredging or improving the walls along its banks.

#### IMPROVEMENT OF THE HARBOR FRONT.

Under date of May 23, 1908, the commissioners forwarded to Congress plans for the improvement of the harbor front, together with report thereon, which was printed as Senate Document 519, Sixtieth Congress, first session. No action has been taken by Congress on this report.

Improvements to a portion of the harbor frontage along the Washington Channel should be made, and when made should be upon some definite plan. If the estimate of \$1,000 heretofore referred to for surveys and plans is granted, it is the intention of the wharf committee to prepare new plans for the improvement of this frontage.

DANIEL E. GARGES, Chairman, D. E. McComb, Russel Dean,

Wharf Committee.

Lieut. Col. CHESTER HARDING, Engineer Commissioner, District of Columbia.

# List of wharf property under lease June 30, 1914. POTOMAC RIVER FRONT.

Name of lessee.	Location.	Expires.	Water front- age.	Area.	Rental per year.
R. M. Allen, from Mar. 15, 1914, to June 30, unexpired term	Sec. 2, structures 39 and 40 (see below).	Mar. 15,1915	Lin. ft. 40	Sq. ft. 2,400	\$22.3
of Dawson Boat Co.'s lease. American Ice Co	Sec. 2, structures 54 to 67, inclusive, except structure 59.	Mar. 15, 1918		61, 200	3,04.3
Samuel Bensinger	Sec. 1, structures 26 to 30, in- clusive.	Sept. 30, 1917	120	7,000	460.0
Capital Yacht Club	structures 39 and 41.	June 30, 1915	24	2,080	73.0
James H. Carter & Co	clusive.	Monthly	200	26, 600	1,000.0
L. A. Clarke & Son	clusive, including 701.	Aug. 1,1918	280 132	45, 800	1,900.0
Colonial Beach Co	Sec. 1, structures 31 to 37, inclusive. Foot of 31st St. NW	Mar. 15, 1918 Feb. 1, 1918	53	8,000	26.5
Cranford Paving Co	Sec. 2, structures 39 and 40 (see above)		40	2, 400	4.0
J. Maury Dove Co. (Inc.) Do	Sec. 3, structures 39 and 40	Mar. 15, 1915 Monthly	168 100	38,000	1,570.0 130.0
G. W. Forsberg	Sec. 2, structures 22 to 33, in- clusive, except 24, and struc- tures 118, 119, and 120.	Mar. 15, 1915	156	18,000	731.0
W. E. Garner et al Edw. J. Gardiner, from July 1, 1913, to Dec. 31, 1913 (unex- pired term assigned to Wm.	Sec. 2, structures 30, 37, and 38.	Mar. 15,1916	44 20	3,330 1,600	300.0 37.5
A. Ragan).  E. Maxison Hall, from July 1, 1913, to May 16, 1914, 104 months; turned over to purchasing officer, District of Columbia, except structure 81, turned over to superintendent of weights, measures, and markets.	Sec. 2, structures 78, 79, 80, 81, 82, 85, 86, 87, and 88, except land occupied by fish houses of A. J. White and E. G. Hammond.			26,800	1,058.0
Wm. C. Hamburg Johnson & Wimsatt	Sec. 3, structure 23. Sec. 3, structures 5 to 11, in-	Apr. 15, 1915 Mar 15, 1918	18 199	1,440 43,500	2,24L8
Mount Vernon & Marshall Hall Steamboat Co.	clusive. Sec. 1, structures 59, 62, 63, and 64.	do	125	10,000	600. M
Norfolk & Washington Steam- boat Co.	Sec. 1, structures 41 to 49, inclusive, 57 to 69, inclusive.	do	220	20,300	1,500.0
Do	Sec. 1, structures 60 and 65 to 72, inclusive.	Dec. 16, 1916	190	44,000	2,345.00
Potomac & Chesapeake Steamboat Co.	Sec. 2, structures 11, 12, 13, 14, 15, 16, 17, 17, 18, 19, 20, and 21.	Mar. 15,1918	198	35,600	1,584.0
Wm. A. Ragan, also unex- pired term of lease of Edw. J. Gardiner, from Jap. 1 to Mar. 15, 1914	Sec. 2, structure 22	)Mar. 15,1915	{ 45 20	2,600 1,600	160.66 17.5
Mar. 15, 1914. Frank M. Roberts, from July 1, 1913, to May 15, 1914, then transferred to superintend- ent of weights, measures, and markets	Foot of 131 St. SW	Monthly	126	11,015	365.00
Lewis F. Smoot, from July 1, 1913, to Apr. 24, 1914, then transferred to superintend- ent of weights, measures, and markets.	Fapt of 14th St. SW	dø	223	27,900	Ser a

## List of wharf property under lease June 30, 1914—Continued.

#### POTOMAC RIVER FRONT-Continued.

Name of lessee.	Location.	Expires.	Water front- age.	Area.	Rental per year.
Jos. P Stephenson, trading as Stephenson & Bro.	Sec. 2, structures 1 to 10, inclusive.	Jan. 31, 1917	Lin. ft. 300	59, 900	\$2,300.00
Wimsatt & Church	Sec. 2, structures 34 and 35 Sec. 2, structures 89 to 97, inclusive; structures 98 to 129, inclusive.			18,000 125,300	720,00
District of Columbia, municipal fish wharf and market.	Sec. 3, structures 1 to 4, inclusive, and fish houses on structure 84, sec. 2; office-building structure 81, sec. 2:				
District of Columbia, under	Foot of 13½ St		126 233	27,960	
jurisdiction of purchasing officer.	85, 86, 87, and 88. Sec. 2, structures 41, 42, and 43 to 53, inclusive.		183	26, 648	••••••
District of Columbia, fire-boat wharf.	Sec. 1, structures 39 and 40	•••••••			· · · · · · · · · · · · · · · · · · ·
District of Columbia morgue District of Columbia harbor master's wharf.	Sec. 1, structures 41 and 42 Sec. 1, structure 38, and sec. 2, alip between structures 41 and 42.				
					23,706.20

#### ANACOSTIA RIVER (EASTERN BRANCH).

Name of lessee.	Location.	Expires.	Water frontage.	Rental per year.
Harry D. Bailey	North side, just west of Anacostia	Oct. 18, 1914	Feet. 81.0	\$76, 00
C. C. Carisen	Bridge to west abutment wall of old Anacostia Bridge. Water front, between building lines	June 1, 1915	50.0	50,00
Edward S. Dean	of 4th St. SE. Water front, between the lines of N St. SE.	Monthly		67. 50
Eastern Power Boat Club	Directly west of the west abutment of the old Anacostia Bridge.	June 30, 1916	98.0	162.75
District of Columbia sewer division.	Foot of 1st St. SE., opposite lot 1, square south of square 744.	}	{ 198.0 132.0	}
Thos. W. Smith	Square south of square 744			132,00
Lewis E. Smoot. Standard Oil Co	Foot of 3d St. SE., square 803 Water front, between building lines of Q St. SE.	Apr. 1, 1916 Dec. 31, 1915	106.3	400.00 200.00
United States, Superintendent Capital Building and Grounds.	Foot of 1st St. SE., opposite square south of square 744.		40.0	
Total				1, 088, 25

#### JAMES CREEK CANAL.

			Feet.	
W. A. Anderson	Part of parcel No. 8.	Oct. 1, 1915	127	\$158, 75
Galliher & Huguely	Parcels Nos. 5, 7, and 11	June 30, 1915	277	207. 75
Lewis Jefferson	Parcel No. 9	do	100	75, 00
Robert Murphy	Parcels Nos. 1 and 3	do	445	173.50
Henry Raum	Parcel No. 31	Nov. 7, 1914	50	25.00
George C. Taylor	Part of parcel No. 8	Nov. 15, 1914	136	225.00
Do	Parcels No. 4 and 6 and south part	Feb. 1,1915	195	171.25
	of parcel No. 8.			
Urban & Bradley	Parcel No. 13	Mar. 15, 1915	125	84.00
Washington Brick & Terra Co.	Parcels Nos. 2 and 10	June 30, 1915	570	427. 50
Total				1, 547. 75

#### TOTAL RENTALS.

Potomac River front	\$23,	706.	20
Anacostia River (Eastern Branch)	1.	088.	25
James Creek Canal	1,	547.	75

#### REPORT OF THE BOARD FOR THE CONDEMNATION OF INSANITARY BUILDINGS.

WASHINGTON, September 26, 1914.

GENTLEMEN: We have the honor to submit the following report of the transactions of the board for the condemnation of insanitary buildings for the year ended June 30, 1914.

Houses on which action was taken in response to notice for the year endel June 30, 1914.

,	Demol- ished.	Repaired.
Buildings in alleys. Buildings in streets	36 71	, H
Total		177
	1	

Buildings acted upon since the creation of the board for the condemnation of insanitary buildings up to and including June 30, 1914

	Exam- ined.	Demol- ished.	Repaired.	Pending.
Buildings in alleys	1, 101 2, 261	639 1,286	430 892	22
Total	3, 362	1,925	1,322	112

buildings for the year ended June 30, 1914 Preliminary notices served	17 164
Condemnation notices served	27 22
_	
Total	230
Inspections and miscellaneous visits made during the year in connection	

Total number of meetings of the board for the condemnation of insanitary

with the inspection of buildings and the service of notices\_\_\_\_\_ 4,623 Cases referred during the year to other departments for appropriate action under existing regulations\_\_\_\_ Estimated number of tenants required to secure other quarters in streets and alleys through action on the part of the board for the condemnation of insanitary buildings for the year ended June 30, 1914\_\_\_\_\_ Total number since the creation of the board\_\_\_\_\_ .\_\_\_\_ 5, 574

Estimated number benefited by repairs in streets and alleys for the year ended June 30, 1914\_\_\_\_\_\_ 377 Estimated number benefited by repairs in streets and alleys since the creation of the board\_\_\_\_\_\_\_4.501

Four cases have been referred to the corporation counsel for appropriate action in the police court which resulted in the vacation and removal of the buildings in question.

No cases are pending before the Supreme Court of the District relative to the condemnation of property.

It has been necessary for the board to demolish two buildings on account of the refusal of the owners to remove the buildings.

Special attention has been and is still being given to structures unprovided with sewer and water connections with a view of assisting the health department in eliminating box privies by making the owner or owners provide such connections or remove the structure if the condition does not warrant the expense of connecting it with public sewer and water main.

The houses in alleys remaining at the present time are in a fairly good state of repair and their condemnation under the building regulations is not warranted.

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Many repairs have been made by the owners and agents on dwellings in both streets and alleys, for which no notices were served, and, consequently, no record was kept by the board.

Respectfully submitted.

R. G. Powell, Captain, Corps of Engineers, United States Army, Assistant to the Engineer Commissioner.

> WM. M. WOODWARD, M. D., Health Officer, District of Columbia.

MORRIS HACKER.

Inspector of Buildings, District of Columbia, Board for the Condemnation of Insanitary Buildings.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

#### REPORT OF ASSISTANT ENGINEER IN CHARGE OF ROCK CREEK PARK.

WASHINGTON, August 25, 1914.

Siz: I have the honor to submit herewith a report of operations and state-

ment of expenditures in Rock Creek Park for the year ending June 30, 1914.

The amount appropriated for the care and improvement of the park and of Piney Branch parkway was \$21,000. This was expended as shown in the accompanying statement.

The general work of care and maintenance of the park, including mowing, repairs to roads and paths, etc., was done at a cost of approximately \$12,000.

Walls were constructed at the west end along the approach of the bridge across Rock Creek at Pierce's mill to replace wooden railings, at a cost of

The road across the northern end of the park, between the Beach Drive and Daniels Road, was completed, thus affording a new outlet westward from the park.

Work was begun on the construction of a roadway in the Piney Branch parkway, intended to connect the Beach Drive with Seventeenth Street NW, north of Newton Street. The grading for this roadway was partly completed, at a cost of \$1.377.42, and it was then discontinued.

During the winter months a considerable amount of fallen and dead timber was cleared up and converted into firewood, a part of which was disposed of through the superintendent of charities. The cost of the clearing was \$1.664.06.

The macadamized roads were oiled and kept in repair. Numerous extensions were made to bridle paths and footpaths, and these were improved and cleared. Farming operations were continued for the purpose of utilizing some of the vacant ground to produce feed for the horses belonging to the park.

The arboretum was increased through the United States Bureau of Forestry, which furnished a number of trees, which were planted and cared for by the

park police.

Six temporary dry closets were built at points used for picnicking. The general use of the park by the public is largely increasing year by year, and especially the use by picnicking parties and pedestrians, for whose benefit many paths and footbridges have been built. The south and central parts of the park are easily accessible from street car lines at several points, and as this fact becomes known to pedestrians they are becoming more numerous in proportion to the whole number of persons who frequent the park.

The vehicular traffic is largely increasing, and in order to relieve the congestion which occurs at times by distributing this traffic it will be necessary to provide several new roadways across the park from east to west and to continue to widen as far as practicable the existing roadways. It is, however, impracticable at many points to widen these roadways without excessive cost and destruction of natural scenery, which is prohibited in the act creating the park. It is proposed to do as much work of this class within the coming year as will be practicable with the limited amount available after providing for maintenance.

Respectfully submitted.

L. R. GRABILL,

Job No.	Items of expenditure.	Stone and screen- ings.	Hauling stone and screenings.	Pipe and cement.	Lum- ber and fitting.	Oū.	Labor.	Material, etc.	Cent.
2600	General care		-	\$47.37		ĺ	\$9,840.41		\$9,887.78
2601	General care		(	i. T	1	1	743.95		743.95
2602	Farming	1				! <b>.</b>	334.51		334.5I
2603	Farming. Plumbing, convenience station.						25.60		25.60
2604	Building walls, bridge ap-	· · · · · · · · · · · · · · · · · · ·			•••••	1	1 -2.2	!	
2001	Building walls, bridge approach. Olling roads. Grading Piney Branch parkway. Bernoving deed and fallen	l	1	99.90	· 	1	1,316.92 172.21		1, 416, 82
2605	Oiling roads					\$617.40	172.21		789.61
2606	Grading Piney Branch	1			1	1			1
	parkway	'		22, 11			1, 355. 31		1,377.€
2607	Removing dead and fallen					1	'		
	timber	·					1,664.06		1,664.06
2608	Parkway Removing dead and fallen timber Hauling and spreading sand for oiling Temporary closets.	1				l	, ,		
	sand for oiling						240.75	\$34. 16	
2609	Temporary closets						63.00		61.00
	Cobble gutters (contract work)						1		
- 1	work)	. <b></b>						653.70	653.70
	Crushed stone	<b>\$1,249.52</b>	8547.85						1,797.3
	Crushed stone. Blacksmith work. Coal.				· · · · · · · · ·			295.69	295.66
1	Coal							27. 36	27.36
٠ ا	rorage	'	'				! 1	801.11	( 564.//
- 1	Tools and implements							136. 44	
i	Lumber			· · · · · · · · ·	\$142.45			••••	34.38
J	l aint			• • • • • • • •	• • • • • • • •			34. 36 18. 11	
1	Nails, etc	• • • • • • • • •		• • • • • • •	• • • • • • •				
- 1	Kerosene							14. 25	
- 1	Dynamite, etc				• • • • • • • • • •		·····	14. 20	14.20
!	Steam pump and drill							34, 20	34.39
- 1	(hire)	•••••			••••••	•••••		375.99	
- 1	Balance							10. 12	
ı			•••••			•••••		-0. 12	
ı	Total	1,249.52	547.85	169. 38	142. 45	617. 40	15, 756. 72	2, 51 <b>6</b> . 68	21,000.00

#### REPORT OF THE SUPERINTENDENT OF THE DISTRICT BUILDING

#### WASHINGTON, D. C., August 12, 1914.

GENTLEMEN: We have the honor to report that in addition to the routine work incident to the maintenance of the Municipal Building for the fiscal year 1914 several changes were made to the building and mechanical equipment, among others the rearrangement of the board room as an auditorium, equipped with 227 fixed chairs, and the lighting system thereof changed from the direct to the findirect method; the fire department storeroom, located, in room 17, was eliminated and the room remodeled and assigned to the accounting branch of the physical valuation division of the public utilities commission; room 5, formerly occupied by the fire department, was assigned to the engineering branch of the same division; and room 3 was subdivided by the erection of a wood and glass partition, and the east side thereof occupied by the chief of the fire department, who formerly occupied room 5.

A direct motor-driven ventilating fan was installed in the bacteriological laboratory.

During the year 31,453 kilowatt hours of current was furnished the electrical department for the telephone, fire-alarm, and police patrol-box system, and electrical power, steam, compressed air, and hot water for industrial purposes were supplied to two laboratories of the health department and the laboratory of the inspector of asphalt and cement.

Experience of the past year compels us to reiterate our statement of the pre-

ceding annual report that—

"The estimates for the fiscal year ending June 30, 1913, provided for a reduction of the force of cleaners at \$240 per annum (charwomen) from 40 to 38. Congress reduced the number to 30, beginning July 1, 1912. Experience of the past 13 months and careful observation of cleaning methods, force, and results in a number of other buildings of similar character in Washington and an analysis of the cost in this building, two Federal buildings, and one first-class commercial office building has demonstrated that this number (30) is inadequate to maintain present-day standards of cleanliness, without work-

ing the charwomen greatly in excess of what obtains in buildings of this character, and the increase asked for in the estimates for the next fiscal year (to 35) is the minimum which should be employed to produce satisfactory results."

Details of expenditures are shown in the auditor's report of the appropriation for the "Maintenance of Municipal Building, District of Columbia, 1914."

Very respectfully,

MARK BROOKE,
Captain, Corps of Engineers, United States Army,
J. L. Schley,
Captain, Corps of Engineers, United States Army,
Jointly Superintendents of the Building.

The Commissioners of the District of Columbia

(Through Lieut. Col. Chester Harding, Corps of Engineers, United States Army, Engineer Commissioner, District of Columbia).

#### REPORT OF SUPERINTENDENT OF STABLES.

WASHINGTON, October 1, 1914.

SIR: I have the honor to submit the following report showing the operations of the stables under the care of the superintendent of stables, engineer department, District of Columbia, for the fiscal year 1914:

#### List of eight statements attached.

1. Location of stables and departments using same.

2. Number of employees and departments to whom assigned.

3. Number of horses and mules and departments to whom assigned.

4. Number of vehicles, etc., and departments to whom assigned.
5. Assignment of vehicles to officials and employees.

6. Amount of appropriations allotted for maintenance of engineer stables and expenditure of same.

7. Average cost of upkeep of horses during the fiscal year 1914.

8. Horses purchased.

What has proven to be a beneficial adjunct in connection with the operation of the engineer stables consists of about 50 or 60 acres of land located in Rock Creek Park, District of Columbia, through the extreme north end of which runs a fine stream of water. This tract was set aside for use by the District about five years ago through the courtesy of the board of control, Rock Creek Park, and was immediately made fertile with the accumulation of manure from the northwest engineer and water department stables. The land is now cleared and abundantly covered with a growth of fine grass, making it, together with the stream, an excellent pasture for horses which have become temporarily incapacitated. A rustic fence completely incloses the tract, permission for the erection of same having been granted at the time it was set aside for use by the District.

The system in vogue in connection with the transfer of horses and mules is, in my opinion, a worthy one and one to be commended from the point of humanity, it being the policy to transfer them from time to time when found incapacitated for the work in which engaged to a service slightly below that performed or one not quite so strenuous, instead of selling them and purchasing others. Thus the animals remain in the District's service, at the same time performing all of the work that is required, and as a final reward for their faithful service are sent to one of the farms connected with the District's institutions, where upon complete incapacitation they are destroyed.

The entire accumulation of manure at the engineer stables is now most advantageously disposed of, it being furnished to the institutions at Blue Plains and the workhouse at Occoquan, Va.. in addition to which the institutions have available for their use the hand sweepings collected by the street-cleaning department. In the case of the former transfer is made by team while in the latter delivery is made at the First Street Wharf SW., and upon arrival of the barges from the workhouse laden with the construction material products of the institution, instead of returning light after discharging, they are loaded with manure and sweepings for the return trip. By this method the institutions have been furnished an excellent fertilizer at practically no cost

For your consideration I beg to state that the transportation and hauling necessary in the routine work of the several departments of the District Government is now furnished in numerous ways, viz:

(1) Maintenance of stables, under my supervision, as enumerated in statement No. 1, said stables being located at different points—two in the southwest section of the city while the third is in the northwest section.

(2) Maintenance of stables, at various points, under the supervision of the imme-

diate heads of departments.

(3) Hire of conveyances for officials and teams for hauling.(4) Board of District horses and vehicles at livery stables.

It will be seen that in the maintenance of numerous stables the District, in each instance, is compelled to practically operate each stable independently of the others, in addition to which the District hires quite extensively teams for use in the sewer, surface, and water departments. Mention might here be made of the fact that or account of inclement weather, or other causes, it is often necessary that many teams under my supervision remain idle on account thereof, whereas they could on such occasions be engaged in the hauling of construction materials used in the erection of buildings or in other ways, an instance being the hauling of the workhouse products from their Tenth Street Wharf to the line of usage. Many other cases would arise whereby teams could be kept constantly at work.

It would therefore seem that it would be in the interest of practical and efficient administration for an institution as large as the District to maintain its own municipal barn under one superintendent who would be charged with the duty of furnishing the various departments with such transportation as they require in the proper conduct of the department, thereby obtaining a concentration of responsibility for the economical operation of same. In my opinion the District now owns a site on U Street NW., between Sixteenth and Seventeenth Streets, which, on account of in

central location, would be well suited for the erection of such a barn.

Of course it is obvious for many reasons that the police and fire departments, as well as such institutions as are located on large tracts of land in or outside of the District, should be exempt from consideration in this connection.

Respectfully,

J. W. BEALE, Superintendent of Stables, Engineer Department.

Oapt. J. S. Schley, Corps of Engineers, United States Army, Assistant to Engineer Commissioner.

STATEMENT No. 1.—Location of stables and departments using same.

1. First and Canal Streets SW.—Disbursing officer, plumbing inspector, sewer department, surface division (part), surveyor, and weights, measures, and markets.

2. Second and Canal Streets SW.—Electrical department.

3. U Street stables, U Street between Sixteenth and Seventeenth Streets NW.—Municipal architect, repair shop, surface division (part), engineer commissioner and assistants.

STATEMENT No. 2.—Number of employees and departments to whom assigned.

	Employees.							
Location of stable.		Annual.		Per diem.				
İ	Black- smiths.	Driv- ers.	Watch- men.	Driv- ers.	Stable- men.	Watch-		
U Street			2		2 1			
Second and Canal.			l	1 12				
First and Canal				1 1 3				
First and Canal U Street				27 1 23				
U Street				3				
	First and Canal. U Street. All three Second and Canal. U Street.  do. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. First and Canal. First and Canal.	Black-smiths.  First and Canal. U Street. All three. Second and Canal. U Street.  do. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. First and Canal. First and Canal. First and Canal. First and Canal.	Black-smiths. Privers.  First and Canal. U Street. All three Second and Canal. U Street. 2  do First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. First and Canal. First and Canal. First and Canal. First and Canal.	Black-smiths. Priv-smen.  Pirst and Canal. U Street. All three. Second and Canal. U Street. 2 do. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. U Street. First and Canal. I U Street. First and Canal. First and Canal.	Black-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smiths   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   Driv-smen.   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# STATEMENT No. 2.—Number of employees and departments to whom assigned—Contd. RECAPITULATION.

All (superintendent, watchmen, stablemen)	3 2	4 54 1
U Street stables.	7	9

Grand total, 75.

## STATEMENT No. 3.—Number of horses and mules and departments to whom assigned.

Department.	Location of stable.	Horses.	Mules.
Disbursing	First and Canal	1	
Rectrical	Second and Canal	3	
Ingineer commissioner and assistants		15	
Nunicipal architect		;	<b></b>
Repair shop	U Street.	1	
kwer		l iī	1 2
Do	U Street	1	
Surface	First and Canal	15	1
Do	U Street	5	
Burveyor Weights, measures, and markets	First and Canaldo	3 2	
Total		50	

<sup>1</sup> See note under Statement No. 5.

## RECAPITULATION.

Stable.	Horses.	Mules.
inst and Canal Streets SW	33	41
8 treet stables	14	4
Total	50	45
Grand total, 95.		
Horses and mules . Forage payable from engineer department allotment	••••••	95

STATEMENT No. 4.—Number of vehicles, etc., and departments to whom assimed.

						Depart	ments					
Item.	Emergency.	Disbursing.	Electrical.	Engineer commissioner and assistants.	Municipal archi- tect.	Plumbing.	Repair shop.	Sewer.	Surface.	Surveyor.	Weights, meas- ures, and mar- kots.	Total
Automobile				1				Ī				
Harness: Buggy, single		1	1	3	1	1	1	2	7	1		,
Carriage, double		•			٠	•	1	-	١ .			
double Cart				11	•••••			5	g.			
Wagon— Single			i	······			i	1	i			l
Single			1 1		••••	<b></b>	2 2	14	15	3	2	3 2
Vehicles:			٠ ١		• • • • • •		2	15	,	i	•	١ ٠
Buck bo ard,		1	i		1	ļ		I	ļ	1		
2-horse Buggies	1	····i		2	····i	·····i	2	2	6		· · · · · · · · · · · · · · · · · · ·	
Carringes,	•	1 -		-	٠.	•	1 -	-	1			, '
closed— 1-horse		Į	ł		l	}	l	ŀ	l	ł		ł
2-horse	·····i·			4		••••			• • • • • •			
Surreys	<del>.</del>			14					i			
1-horse wag-		f	2		1	ł	2	28	19	3	2	۱.
- ons 2-horse wag-			2		l		, z	28	פו	3	Z	
ons		<b>.</b>	2				2	8	4	<b> </b>	2	1
3-horse wag-		1	•	1	l	ı			1	1		
ons				·····				2	·····	ļ		•

<sup>1</sup> See note under Statement No. 5.

#### STATEMENT No. 5.—Assignment of vehicles to officials and employees.

Title.	Vehicle.	Numbe
Engineer commissioner.	Automobile	
Lo		1
Do	Surrey (2-horse) 1	1
Assistants to the engineer commissioner		
<u>p</u> o	Surreys (1-horse)	
170	Buggles i	1
Engineer of highways.  Inspector, surface division.	Buggy	i
	dodo	
Assistant engineer, surface division	······	1
Superintendent of streets	do	Ī
inspecto of asphalt and cements	10	1
Engineer of bridges		
Plumber, repair shop	Ruggy	1
Carpenter, repair shop		ļ
nspector of plumbing	do	1
inspector, sewer department	dox	1
Assistant engineer, sewer department	do	
Disbursing officer	do	
Municipal architect	do	1
Emergency	d <b>o</b>	i
10	Closed carriage (2-horse) 3	l
Do	Buckboard (2-horse) '	ĺ

<sup>1</sup> By reason of the District appropriation act for the fiscal year 1915, approved July 21, 1914, the following disposition was made of the equipment used by the engineer commissioner, I istrict of Columbia,: One 1-horse closed carriage, one 2-horse surrey, 1 set double harness, transferred to the purchasing officer, District of Columbia, for disposition. Two horses transferred to inspectors in engineer department and the horses used by those inspectors, which were incapacitated, were transferred to the District of Columbia Workhouse, at Occoquan, Va.

2 These buggles have been transferred to the surface division for use in inspection work.

3 The following disposition was made of certain vehicles used for emergency purposes, since they were no longer needed: One 2-horse closed carriage, one 2-horse buckboard, transferred to the purchasing effect, District of Columbia, for disposition.

STATEMENT No. 6.—Amount of appropriations allotted for maintenance of engineer stables and expenditure of same.

_			Expended.	
Appropriation.	Amount.	Forage.	Pay rolls.	Supplies (mi cella- neo is).
funicipal architect:				
Home for Aged and Infirm	822, 61		\$22.61	l
Fire department, repair building	43. 27	\$28, 17		
Interior park	12. 10	12.10		
Shelter, farmers' market.	28, 17	28.17		
School;				
Birney	37, 65		37. <b>6</b> 5	l
Congress Heights	25, 00			
M Street High	118.15	7.15	106.00	<b> </b>
New Central High	254, 42	46.90		
Sectrical engineer: Lighting	730, 27	275.82	409. 51	\$20.14
Superintendent of sewers:		1		1
Assessment and permit work	254.14		254. 14	
Cleaning and repairing.	8, 723. 98	4,748.52	<b>3, 2</b> 00. 58	779.88
Main and pipe	127.06	·····	39.90	87.16
Suborban	1, 104. 95	982, 27	72.04	50.64
Repairs to engit e ho ises		1 200 00	~ ~	8.25
Repairs to police stations	270.11 106.20	167. 86	94.00 82.00	22.50
Repairs to school buildings		1, 402, 80	248.75	62.25
Superintendent street cleaning: Cleaning, etc	1,713.89 233.75	1,002.00	233.75	1 02.2
Engir eer of highways:	434. 13		230.75	
Bridee, Pennsylvanie Avenue	120, 00	120.00	1	1
Bridre, Q Street	410.00	188.75	991 95	
Bridges, construction and repair	153.07	158.07	••••	
Sched :les-	100.07	100.01		
Geor etown.	20,00	30,00	<b></b>	
Northeast	104, 00	104.00		
Northwest	90.00	90.00		
Bo rtheast	101.00	101.00		
So thwest	28,00	28.00		
Sidewalks and curbs	63. 20	63.20		
Streets—				
Assessment and permit	1, 150, 00	658, 43	274.25	217. 32
Repairs to	1,850.00	967.26	443.50	437. 24
Specific. Suburban roads, repairs to	1,021.00	820, 88	·····	200.12 11.06
Trust funds	335.00	44. 19	260.75	
Burveyer:	218.00		218.00	<u> </u>
Balaries, etc.	618.38	53, 38	565.00	1
Old s ibdivisions	73.11	73.11	1 400.00	
Superintendent water department: High service	607. 24	78.49	528.78	
Total	20 220 01	11 207 70	7 500 00	1, 896. 56
- U	20, 770, 81	11, 267. 70	7, 560.08	1.590.00

## STATEMENT No. 7.—Average cost of upkeep of horses during fiscal year 1914.

Forage, allowance for 1 horse for 1 month, contract prices 1914:  100 po mds long rye straw, at \$1.247 per 100 pounds.  40 pounds long hay, at \$1.257 per 100 po inds.  34 po mds cets, at \$1.859 per 100 po inds.  80 pounds bran, at \$1.548 per 100 pounds.	\$1.25 5.11 7.14 .77
Total cost of forage for 1 horse per month	
Total cost of forage for 1 horse per year	171. 24 9. 60
Total	180, 84

## STATEMENT No. 8.—Horse purchased.

## APPENDIX.

# SPECIFICATIONS FOR PAVING STREETS WITH SHEET ASPHALT AND ASPHALTIC CONCRETE.

1. Work.—The work to be done under this contract will consist of paving with sheet asphalt and asphaltic concrete such streets, avenues, and roads in the District of Columbia or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia under appropriations for the fiscal year ending June 30, 1915. The commissioners especially reserve the right to regulate the time and order of executing work ordered under this contract as may appear most advantageous to the intrests of the District.

2. Amount of work.—The estimated amount of this work is as follows:

	Bq. yes.
Standard sheet asphalt pavement on 6-inch concrete base	29 00
Vitrified-block gutters	4, 500
Asphaltic concrete on 6-inch concrete base	
Asphaltic concrete on a broken-stone base	

These amounts are approximations only and may be considerably varied from; but they will be used in canvassing bids, and the awards will be based thereon. In scheduling the bids for the purpose of an award of contract there will be deducted from the total cost of doing the work as determined from the prices bid therefor and the quantities above stated, such sum as will represent the amount proposed by the bidder to be allowed to the District of Columbia and deducted from his contract prices for the use of Occoquan stone. The estimated amount of stone to be so used for the purpose of scheduling the bids as above is 5.000 cubic yards for asphalt pavements and 3,000 cubic yards for asphaltic concrete pavements, a total of 8,600 cubic yards. One award will be made to the lowest acceptable bidder for all the asphalt pavement, including their vitrified-block gutters, and another award to the lowest acceptable bidder for all the asphaltic concrete (items 3 and 4 of the proposal).

8. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the road-bed and all rolling; provide bridges, fences, and other means of maintaining after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of person and property; furnish all material (except as specified), and slittools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

4. Old material.—Old material removed from the streets will be the property of the District of Columbia, and the work of removal will be paid for at prices named in paragraph 13 of these specifications. Granite block, cobble, old curb, etc., must be removed to the nearest property yard, or to such other places as the engineer may direct.

5. Grading and subgrade.—Lines and grades will be established by the engineer, and no work will be commenced until these are given. The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the

engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling, with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineers No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class. Any filling will be done in layers not exceeding 12 inches in thickness, and all materials used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor. All measurements will be made in place and payments made thereon. Should the grading involve work in both "cut" and "fill," the measurement of it will be computed on the basis of the volume of the material in place in the "cut" only; the excavated material from the "cut" section deposited in the "fill" will not be again paid for as "fill." Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

#### STANDARD SHEET ASPHALT PAVEMENT.

6. Concrete base.—Upon the bed prepared as described in paragraph 5 there will be laid 6-inch foundation of concrete as directed, made of the following materials by volume:

One part Portland cement, 3 parts sand, 7 parts gravel.

Broken ston?, run of the crusher, may be substituted for part or all of the

gravel at the option of the contractor.

(a) Cement.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 40 days after notifying the inspector of asphalt and cements before it can be used on the streets, if deemed advisable by the engineer commissioner. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and charge said contractor with the cost of same at the rate of \$1.50 per barrel of Portland cement for each and every barrel so furnished and collect the amount due therefor from any moneys found to be due to said contractor by the District. All cement sacks are to be returned by the contractor, and for those not returned or not in good condition a charge of 10 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time, not exceeding 28 days, as the engineer commissioner may think necessary, said tests to be conducted in accordance with the methods prescribed in Circular 33 of the Bureau of Standards, United States Govern-

ment specifications for Portland cement.

(b) Sand.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud. clay, mica, paper, leaves, chips, or other foreign matter, and not showing when shaken with water and after subsidence more than 5 per cent by volume of silt

after subsidence more than 5 per cent by volume of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in



diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard angular fragments of stone will be considered foreign substances.

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from

that down to pea size, well graduated.

(e) Occoquan stone.—At the option of the commissioners there may be used in place of any part of the stone or gravel above specified as a constituent of concrete base, broken stone delivered from the quarries owned and operated by the District of Columbia at Occoquan, Va. The stone referred to will be issued to the contractor on the District wharf at Tenth and Water Streets SW., or on scows alongside the District wharf at the foot of Thirtieth Street W., or on scows alongside any wharf that the contractor may select where he may prefer to unload the material. The stone so furnished will be issued to the contractor on the basis of 2,500 pounds to the cubic yard, if issued by weight, and will be charged against him at a price therefor to be fixed by him as an item of his bid. This price, for deliveries at the District wharf at Tenth and Water Streets, is not to be less than 69 cents per cubic yard. The price for deliveries on scows at the foot of Thirtieth Street or at any other wharf selected by the contractor will be 15 cents per cubic yard less than the price bid for deliveries on the wharf at Tenth and Water Streets.

The use of Occoquan stone under the above arrangement may be required at to the whole or any part of the work covered by this contract. The stone proposed to be supplied will consist of a mixture about half and half of 2-inch

and 1-inch stones, smaller fragments being excluded.

(f) Water.—Water used for mortar and concrete shall be fresh and clear, free from earth, dirt, or sewage, and shall be used in such quantity as the earneer may direct.

(g) Platforms.—Platforms shall be provided upon which all sand, gravel and broken stone for concrete shall be placed when brought upon the line of the

work, and kept there until used.

(h) Mixing.—The thorough mixing and incorporation of all material will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 feet by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

(i) Setting.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing

a new batch.

Each batch of concrete after being mixed shall be spread in place in horisontal layers by means of shovels so as to give the requisite thickness after being tamped and shall then be thoroughly compacted. Any evidence of lack of conpaction will be regarded as sufficient reasons for removal and replacement of the base. Hauling over base less than 3 days old must not be allowed unless plants are laid.

7. Asphaltic binder.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing an inch and a quarter screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than 1½ inches, and the stone, after passing the heating drums, shall not contain less than 5 nor more than 15 per cent of material passing a No. 10 screen.

The stone will be heated not higher than 350° F. in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60 to 90, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. Should it appear dull from overheating or lack of cement it will be rejected While hot it will be hauled upon the work, spread upon the base so that when compacted it will be at least 1½ inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course not show a proper bond it must be immediately removed and replaced by and at the expense of the contractor. Binder and top shall not be taken from the yard to the site of the work when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather, between the hours of sunset and sunrise, as often as may be deemed necessary, and in cold weather cover it with a material suitable for its protection.

8. Asphalt wearing surface.—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand,

and fine absorbent mineral dust.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water, and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide, and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 8c.

(b) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics: Free from water and foreign matter; flash point not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent; the flash point shall be taken in a New York

State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort provided with a thermometer and placed in a copper holder. The residue in the retort, after distilling, must be fluid at 75° F. and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner may be

used in place of petroleum oil.

(c) Asphalt cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of pene-

tration to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely, in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. It will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

(2) When a briquette of the bitumen having a minimum cross section of 1 square centimeter, having a ponetration of 50° to 53° at 77° F. is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking.



(3) When the bitumen is heated in an open tin box  $\frac{3}{4}$  inch deep by  $2\frac{1}{4}$  inches in diameter at a temperature of  $300^{\circ}$  F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it. When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to in sure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

(d) Sand.—The sand in use shall be free from mud, hard grained, and moderately sharp. In sifting it should have at least 15 per cent of material that would be caught on a 40-mash-per-inch screen, 25 per cent of material that will pass an 80-mesh-to-the-inch screen, and 10 per cent at least must pass a 100-mesh to-the-inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased at the discretion of the engineer commissioner.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass 30-mesh screen and at least 85 per cent pass 2

100-mesh screen.

(f) Asphalt paving mixture.—The materials complying with the above specifications shall be mixed in proportion, by weight, depending upon their character and the traffic on the street and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned, its use will not be permitted, and, if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

The sand, or the mixture of sand and stone dust, and the asphalt cement will be heated separately to about 300° F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphalt cement at the required temperature and in the proper proportion is a suitable apparatus, so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will be weighed in the presence of inspectors as often

as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements, when required, in suitable tin boxes and cans; he shall have access to all branches of the works at any time, and shall have the right to obtain samples of all materials from the source

of supply.

(g) Laying asphalt surface.—The pavement mixture prepared in a manner thus indicated will be brought to the ground in carts or wagons at a temperature of not less than 250° or more than 350° F.; the contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 2½ inches by means of hot iron rakes, in such manner as to give uniform and regular grade, so that after having rereived its ultimate compression it will have a net thickness of at least 1½ inches. This depth will be constantly tested by means of gauges furnished by the engineer commissioner. The surface will then be compressed by steam rollers, after which a small amount of hydraulic cement will be swept over it, and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface. The street to be barricaded and the barricades to remain for such length of time as deemed necessary by the engineer commissioner. Binder or topping shall not be laid when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement.

9. Laying vitrified block.—Vitrified-block gutters will ordinarily be 134 inches wide, laid on a concrete base 6 inches in depth, of the same material and proportions and laid in the same manner as prescribed in these specifications for

the concrete base under asphalt pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 4 parts of the sand specified in paragraph 6b, and 1 part of Portland cement, thoroughly mixed, will be spread thereon, as a bed for the paving

blocks, to the depth of not less than 1 inch, and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed thus prepared for them the blocks will be set on edge, with the longest dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a lap

of not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several the plank with a heavy rammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a

thin, easily flowing grout, of neat natural cement.

A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will in that case extend to the bottom of the crossties, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards and must be hauled to the work at his expense.

10. Asphaltic concrete on concrete base.—(a) Concrete base.—The base is to conform in all respects to the specifications herein in relation to concrete base

for sheet-asphalt pavements. (See paragraph 6.)

(b) Paving materials.—The paving materials shall be composed of crushed trap-rock screenings, concrete sand, and mineral dust in the following proportions by volume: Trap-rock screenings 3 part; concrete sand, 1 part; and mineral dust, at least 5 per cent of the above aggregate: mixed with asphaltic The various constituents of the mineral aggregate and asphalt cement shall be of the same kind and conform to District specifications for such materials

for the year ending June 30, 1913, as follows:

(c) Trap rock.—The trap rock shall be of a quality to be approved by the engineer and shall be equal to that used by the District of Columbia for macadam roadways. The crushed stone will vary in size from 1 inch to screenings,

and shall be devoid of dust.

(d) Sand.—The sand shall be hard grained and moderately sharp. On sifting , it should have at least 25 per cent of material that would be caught on a 20mesh per inch screen and 5 per cent of material that will pass an 80-mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust. the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a

100-mesh screen.

(f) Asphalt.—The asphalt shall be refined until homogenous and free from water and shall not at any time be heated to a temperature high enough to The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts of the flux to produce the asphaltic cement described in paragraph 10h.

(9) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oll has the following characteristics: Free from water and foreign matter; flash point, not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent; the flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and placed in copper holder. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline

Any other softening agents approved by the engineer commissioner may be

used in place of petroleum oil.

(h) Asphaltic cement.—The asphaltic cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maitha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle. 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

Preference will be given to an asphaltic cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an

asphaltic cement is accepted that is affected by water some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphaltic cement must comply with the following tests:
(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

(2) When a briquette of the bitumen having a minimum cross section of 1 square centimeter, having a penetration of 50° to 53° at 77° F. is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking.

(3) When the bitumen is heated in an open tin box, three-quarters inch deep by 21 inches in diameter, at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphaltic cement must never be heated to a temperature that will

injure it.

When the asphaltic cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

(i) Asphaltic concrete paving mixture.—The materials complying with the above specifications shall be mixed in proportions by volume depending upon their character and the traffic on the street, and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits 7 to 9 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned, its use will not be permitted, and, if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

(j) Laying asphaltic concrete surface.—The stone and paving cement shall be heated separately to a temperature of about 300°, and shall be thoroughly mixed while hot by the machinery. The proportion of paving cement shall be sufficient to thoroughly coat each particle of the aggregate, and the entire mixture shall be subject to the approval of the engineer. The mixture will be hauled while hot to the site of the work and shall be covered until deposited on the street. The temperature at the time of dumping shall not be less than 220°. The hot mixture shall be evenly spread with hot tools upon the base to such a thickness as will make a layer 2 inches in thickness after rolling. It shall then be rolled with a steam roller weighing not less than 1 ton per foot of trend of roller until no further compression occurs. After the rolling of the asphalt wearing surface has been completed there shall be spread over such surface a thin coating of asphalt cement as used in surface not to exceed on an average a quarter of a gallon to the square yard, of such consistency as shall be approved, which shall be thoroughly brushed into the wearing surface so as to fill all voids and smooth out any minor unevenness of the said surface. There shall then be spread over and rolled into this flush coat a thin layer of trap screenings, so far as practicable devoid of dust, in size from 1-inch down, whose use shall be to the end of securing a gritty, no-slippery surface. The finished surface shall be free from lumps or depressions and shall be true to the required cross section. The street to be barricaded, and so remain for such length of time as deemed necessary by the engineer.

11. Asphaltic concrete on broken-stone base.—A surface coat of asphaltic concrete complying in all respects to the specifications above for asphaltic concrete for concrete base is to be laid on a base of broken stone or gravel. The base will be furnished by the District of Columbia, in place and rolled, ready for

surfacing. The price bid will include supplying, mixing, placing, and rolling the asphalt surface.

12. Additional work.—The following specifications will cover incidental work

which may be required of the contractor:

- (a) Setting 6 by 20 inch granite and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls of stone, hard-burned bricks, or other acceptable substance prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it, without the use of small chips and fragments, used as "chimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade, the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made and the lines and grades furnished strictly followed.
- (b) Setting 8 by 8 inch granite curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set, and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center of the street. In the trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screen pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above the curb will be placed before the concrete has set, and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade, the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(c) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification, also, the curb may be adjusted to line and grade without removing it

from its trench, if so ordered by the engineer.

(d) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other clan that incidental to the neces-sary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to imbed the stone and back and adjust it to line and grade.

(e) General instructions.—All curb will be furnished to the contractor at the District property yard and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor,

are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained. Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repayed, if required by the engineer, without cost to the District.

13. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

(1) Removing old curb, including haul not to exceed 2 miles, 8 cents per

linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile. (3) Hauling from District property yard and setting 6 by 20 inch curb. 25

cents per linear foot.

(4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per line r foot.
(5) Hauling from District property yard and setting 8 by 8 lnch curb, 35 cents per linear foot.

(6) Resetting 8 by 8 inch curb on new concrete base. 31 cents per linear foot.

(7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot. (8) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.

(9) Removing old rubble, cobble, flagging stone and brick, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.

(10) Removing old asphalt blocks, including haul not to exceed 2 miles, 20 cents per square yard.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.
(12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter mile

or fraction thereof.

(13) Removing old granite block and loading same on wagons, without haul, 17 cents per square yard.

(14) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.

(15) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.

(16) Grading and hauling macadam, not to exceed 1,000 feet, 55 cents per

cubic yord.

(17) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1.000 feet, \$1 per cubic yard.

(18) Removing old coal-tar and bituminous pavement or base of the class laid

prior to 1880 and hauling same not to exceed 1.000 feet, \$1.85 per cubic yard. (19) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50

per cubic yard. (20) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.

(21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.

(22) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.

(23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.

(24) Laying and relaying granite block, 75 cents per square yard.

(25) Relaying cobble and rubble, 30 cents per square yard.

(26) Repairing cement walks. \$1.50 per square yard. (27) Repairing brick walks. 25 cents per square yard.

(28) Laying asphaltic or broken stone base in place, \$3 per cubic yard. (29) Laying Portland cement concrete base in place. \$5 per cubic yard.

(30) Adjusting manhole tops and basin covers to grade. \$1.50 each.

(31) Adjusting water valve casings to grade. \$3 each.

(32) Adjusting electric light or telephone manhole tops to grade as follows:

(a) Size, 14 by 18 inches. \$1 each.

(b) Size, 36 by 36 inches, \$1.50 each.

(c) Size, 6 by 6 feet, \$4 ench.

14. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall

conform to current District of Columbia specifications therefor.

15. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs), or on the cost of grading, the removal of old materials and of the overhaul on the same, and of stonecutting.

It is further expressly understood and agreed that if any of the pavements laid, should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question of inferiority.

On expiration of guarantee for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered

by the engineer commissioner.

16. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the even: of the contractor failing to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

17. Work in railroad space.—Certificates of indebtedness against street railway companies will be given to the contractor, if necessary, for all work done and all material furnished by him for the space which must be paved and kept in

repair by street railway companies in accordance with existing laws.

18. Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners

before the work is begun.

19. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

#### SPECIFICATIONS FOR LAYING ASPHALT-BLOCK PAVEMENTS.

1. Work.—The work to be done under this contract will consist of paving with asphalt block, on a 6-inch concrete base, such streets, avenues, and roads in the District of Columbia, or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia, under appropriations for the fiscal year ending June 30, 1915. The estimated amount is 9000 square yards.

In scheduling the bids for the purpose of an award of contract there will be deducted from the total cost of doing the work as determined from the prices bid therefor and the quantities above stated, such sum as will represent the amount proposed by the bidder to be allowed to the District of Columbia and

deducted from his contract prices for the use of Occoquan stone.

The estimated amount of stone so to be used for the purpose of scheduling

the bids as above is 1.500 cubic yards.

2. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such

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temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of person and property; furnish all materials (except as specified), and all tools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.

3. Old material.—Old material removed from the street will be the property of the District of Columbia, and the work of removal will be paid for at prices named in paragraph 9 of these specifications. Granite block, cobble, old curb, etc., must be removed to the nearest property yard or to such other places as

the engineer may direct.

4. Grading and subgrade.—Lines and grades will be established by the engineer, and no work will be commenced until these are given. The area over which the payement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming. if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for Any filling will be done in layers not exceeding 12 as grading of its class. inches in thickness, and all materials used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor. All measurements will be made in place, and payments made thereon. Should the grading involve work in both "cut" and "fil," the measurement of it will be computed on the basis of the volume of the material in place in the "cut" only; the excavated material from the "cut" section deposited in the "fill" will not be again paid for as "fill." Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

5. Concrete base.—Upon the bed prepared as described in paragraph 4 there will be laid a 6-inch foundation of concrete as directed, made of the following materials by volume: 1 part Portland cement, 3 parts sand, 7 parts gravel. Broken stone, run of the crusher, may be substituted for part or all of the gravel

at the option of the contractor.

(a) Cement.—The cement used will be a standard brand of Portland cement. uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time as the engineer commissioner may think necessary. The cement while in storage or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 40 days after notifying the inspector of asphalt and cements before it can be used on the streets, if deemed advisable by the engineer commissioner. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and charge said contractor with the cost of same at the rate of \$1.50 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said con-

tractor by the District. All cement sacks are to be returned by the contractor, and for those not returned or not in good condition a charge of 10 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time, not exceeding 28 days, as the engineer commissioner may think necessary; said tests to be conducted in accordance with the methods prescribed in circular 33 of the Bureau of Standards, United States Government specifications for Portland cement.

(b) Sand.—The sand used shall be clean sharp, river or pit sand, containing both fine and coarse grains, but free from sewage, mud. clay, mica, paper, leaves, chips, or other foreign matter, and not showing, when shaken with water and

after subsidence, more than 5 per cent, by volume, of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from

that down to pea size, well graduated.

(e) Occoquan stone.—At the option of the commissioners there may be used in place of any part of the stone or gravel above specified as a constituent of concrete base broken stone delivered from the quarries owned and operated by the District of Columbia at Occoquan, Va. The stone referred to will be issued to the contractor on the District wharf at Tenth and Water Streets SW., or on scows alongside the District wharf at the foot of Thirtieth Street W., or on scows alongside any wharf that the contractor may select where he may prefer to unload the material. The stone so furnished will be issued to the contractor on the basis of 2,500 pounds to the cubic yard, if issued by weight, and will be charged against him at a price therefor to be fixed by him as an item of his bid. This price, for deliveries at the District wharf at Tenth and Water Streets, is not to be less than 60 cents per cubic yard. The price for deliveries on scows at the foot of Thirtieth Street or at any other wharf selected by the contractor will be 15 cents per cubic yard less than the price bid for deliveries on the wharf at Tenth and Water Streets.

The use of Occoquan stone under the above arrangement may be required as to the whole or any part of the work covered by this contract. The stone proposed to be supplied will consist of a mixture about half and half of 2-inch and

1-inch stones, smaller fragments being excluded.

(f) Water.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer shall direct.

(g) Platforms.—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the

work, and kept there until used.

(h) Mixing.—The thorough mixing and incorporation of all material will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels not less than four times and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring 1 barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with 1 barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

(i) Setting.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mix-

ing a new batch.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels, so as to give the requisite thickness after being tamped, and shall then be thoroughly compacted. Any evidence of lock of compaction will be regarded as sufficient reasons for removal and replacement of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

6. Asphalt blocks.—The size of the blocks will be 2 by 5 by 12 inches, and a variation of  $\frac{1}{2}$  of an inch from these dimensions will be sufficient ground for

rejecting any block.

All bids must be accompanied by a specimen block of the size and quality described in these specifications, labeled with the name of the bidder and locality of the factory. Bids not accompanied by specimen blocks will not be accepted. The blocks will be tested for specific gravity; all blocks furnished must be equal in quality to the sample, as determined by the engineer commissioner.

The blocks to be composed of asphalt, petroleum oil, asphalt cement, mineral

dust, and crushed stone.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water, and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 50 per cent of bitumen soluble in carbon disulphide and 100 parts shall not require more than 35 parts

of the flux to produce the asphalt cement described in paragraph 6c.

(b) Petroleum oil.—The oil used in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking until the oil has the following characteristics: Free from water and foreign matter; flash point not less than 300° F.; distillate at 400° F. for 18 hours less than 10 per cent; the flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort provided with a thermometer and placed in a copper holder. The residue in the retort after distilling must be fluid at 75° and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner may be used in place of petroleum oil.

(c) Asphalt cement.—The asphalt cement must be practically free from water and shall not at any time reach a temperature high enough to injure it.

If an asphalt is accepted that is readily affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid.

The asphalt cement must comply with the following requirements and must

in any case be subject to the approval of the engineer commissioner:

(1) For the purpose of testing the asphalt cement having a penetration of 20° to 23° at 77° F. on the Dow penetration machine with a No. 2 needle, 100 grams, 5 seconds, its composition shall be so regulated by the addition, if necessary, of standard fine mineral dust that it will contain 50 per cent of bitumen soluble in carbon bisulphide.

This cement shall be so tough at 32° F. that a prism 1 centimeter square by 8 centimeters long between supports will not break under impact at center with less than 15 centimeters drop of a 25 gramme weight striking a vertical plunger having a horizontal face of 1 centimeter by 1 millimeter resting on the asphalt

prism.

(2) Degree of penetration of the asphalt cement to be fixed by the engineer

commissioner.

(3) When the cement is heated in an open tin box \(\frac{1}{4}\) inch deep by 2\(\frac{1}{2}\) inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it. When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles, so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

(d) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a 100-mesh screen.

(e) Crushed stone.—The crushed stone in use shall be from any tough, hard rock, and shall not contain any appreciable amount of sofe ingredients, such as mica, soft sandstone, or shale. On sifting not more than 3 per cent shall be retained on a 4-mesh-per-inch screen, at least 40 per cent must be retained on 20-mesh-per-inch screen, and at least 12 per cent must pass a 100-mesh-per-inch screen. If the stone does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

(f) Manufacture.—The materials complying with the above specifications shall be mixed in proportions by weight, depending upon their character, which will be determined by the engineer commissioner, but in any mixture the percentage of bitumen soluble in carbon bisulphide shall not exceed the limits, 6 to

9 per cent

If the proportions of the mixture are varied in any manner from those pre-

scribed the blocks will not be accepted.

The stone and dust and the asphaltic cement must be mixed while hot, and the mixture must be compressed into blocks by methods meeting with the approval of the engineer commissioner.

Samples of all material entering into the composition of the block shall be furnished when required, in suitable tin boxes and cans, to the inspector of asphalt and cements, who shall have access to all branches of the works at all

Blocks are to be manufactured with a total minimum compression of not less

than 360,000 pounds per block, press pressure.

7. Method of laying blocks on concrete base.—The 2-inch blocks are to be laid on this concrete base in a paving bed of 1 part Portland cement and 4 parts sand, at least one-half inch thick, and as much thicker as may be necessary, due to inequalities in surface of concrete base, so that the blocks, when tamped in place, will be securely imbedded in this paving bed and wholly supported by it, and will present a uniform surface with close joints and proper grade and crown. The pavement will then be thoroughly grouted with a thin easily flowing grout of 1 part neat Portland cement and 1 part fine sand.

8. Additional work.—The following specifications will cover incidental work

which may be required of the contractor:

(a) Setting 6 by 20 inches granite and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls of stone, hard-burned brick, or other acceptable substance prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently, and afford a firm and stable support for it, without the use of small chips and fragments, used as 'shimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade, the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by sultable ramming. Close contact joints and even surfaces must be made and the lines and grades furnished strictly followed.

(b) Setting 8 by 8 inch granite curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14 inches from curb line toward the building and 4 inches from the curb line toward the center line of the street. In this trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screen pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet-asphalt pavements. On the base prepared and laid as above the curb will be placed before the concrete has set, and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete by the use of heavy wooden mauls. The face of the curb must be plumb and true to line and the top of it carefully set to grade with close and even contact joints. After the curb has been set to

line and grade the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(c) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from

its trench, if so ordered by the engineer.

(d) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary position of it upon the line of work, and no new concrete is required other than that sufficient to imbed the stone and back and adjust it to line and grade.

(c) General instructions.—All curb will be furnished to the contractor at the District property yard and will be hauled by him to the site of the work; any curbing unaccounted for or improperly disposed of, or damaged or broken through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the

contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated. cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained. Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

9. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

(1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile. (3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.

(4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per linear foot. (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.

(6) Resetting 8 by 8 inch curb on new concrete base. 31 cents per linear foot.(7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.

- (8) Dressing, jointing, and cutting curb, etc. (stonecutters' time) including setting-up labor, 65 cents per hour. (9) Removing old rubble, cobble, flagging stone and brick, vitrified block or
- brick, etc., including haul not to exceed 2 miles, 15 cents per square yard. (10) Removing old asphalt blocks, including haul not to exceed 2 miles, 20

cents per square yard.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.

(12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter mile or fraction thereof.

(13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.

(14) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.

(15) Grading and hauling macadam, not to exceed 1,000 feet, 55 cents per cubic yard.

(16) Removing old coal-tar and bituminous pavement or base of the class

laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.

(17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same, not to exceed 1,000 feet, \$1.85 per cubic yard.

(18) Removing old concrete base and hauling, not to exceed 1,000 feet, \$1.50 per cubic yard.

(19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard.

(20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.

(21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.

(22) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.

- (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
  - (24) Laying and relaying grante block, 75 cents per square yard.

(25) Relaying cobble and rubble, 30 cents per square yard.

(26) Repairing cement walks, \$1.50 per square yard.
(27) Repairing brick walks, 25 cents per square yard.

(21) Repairing blick wards, 25 tents per square yard.
(28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.

(29) Laying Portland cement concrete base in place, \$5 per cubic yard.

(30) Adjusting manhole tops and basin covers to grade, \$1.50 each.

- (31) Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:

(a) Size, 14 by 18 inches, \$1 each.

(b) Size, 36 by 36 inches, \$1.50 each.

(c) Size, 6 by 6 feet, \$4 each.

10. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character; or if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contactor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall

conform to current District of Columbia specifications therefor.

11. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion, as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs) or on the cost of grading, the removal of old materials, and of the overhaul on the same, and of stone cutting.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner

shall decide the question of inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered

by the engineer commissioner.

12. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor falling to make such necessary repairs after notice to do so the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

13. Work in railroad space.—Certification of indebtedness against street railway companies will be given to the contractor if necessary for all work done

and all material furnished by him for the space which must be paved and kept in repair by street railway companies in accordance with existing laws.

14 Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is begun.

15. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

## SPECIFICATIONS FOR RESURFACING AND REPAIRING ASPHALT AND COAL-TAR PAVEMENTS.

1. Work.—The work to be done under this proposal and contract includes the renewal or resurfacing of such asphalt and coal-tar pavements as may be ordered from time to time by the Commissioners of the District of Columbia, including the repairs of sidewalks and other pavements disturbed in doing said work, or changed to conform to new grades if so ordered by the engineer.

The renewal of the surface of cuts made in such pavements for tapping sewers and pipes and for other purposes, and generally all patching and miscellaneous work necessary to keep the above-mentioned pavements in good condition for travel, may be included in the work ordered to be done under this contract should the prices bid under items 4 and 5 of the proposal be more economical than the cost for which such work can be done by means of the portable asphalt plant belonging to the District of Columbia. This plant is authorized by law to be used by the commissioners for certain purposes, including the above, so long as the costs of operation shall be less than the costs of similar work under contract. The right of the commissioners to require the contractor under the above conditions to do the work enumerated will not be exercised, except with the contractor's assent, for a period of less than six months or more of continuous performance of such work.

2. Amount of work.—The amount of work is dependent upon the annual appropriation for "Repairs to streets," which was \$365,000 for the fiscal year ending June 30, 1914, and is expected to be \$339,185 for the fiscal year ending June 30, 1915, these figures being contained in the appropriation bill pending and now in conference.

For the purpose of canvassing bids the following approximate estimate of the amount of work to be done during each fiscal year of this contract will be used (standard asphalt surface and binder for repairs and miscellaneous work and material for street railway repairs not estimated, and will not be considered in the canvass of bids):

Standard asphalt pavement on 6-inch concrete base\_\_\_\_square yards\_\_ 25,000 Standard asphalt surface (2½ inches before compression)\_\_\_\_\_do\_\_\_ 25,000 Asphalt binder, cubic-foot measurement, in connection with resur-

facing \_\_\_\_\_\_cubic feet\_\_ 50,000
Asphaltic concrete, on 6-inch concrete base\_\_\_\_\_square yards\_\_ 15,000
Asphaltic concrete surface, 2 inches thick after compression\_\_\_\_do\_\_\_ 5,000
Asphaltic concrete in connection with resurfacing work\_\_\_cubic feet\_\_ 1,000

- 3. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all material (except as specified) and all tools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.
- 4. Old material.—The amount of old material to be cut and removed each day shall be decided by the engineer commissioner or his agents. Should the contractor remove more than ordered, he must replace it with new material

without cost to the District. No payment will be made for any coal tar or asphalt surface removed in making repairs, and the material thus removed will become the property of the contractor, to be disposed of by him. Any coal tar or asphalt surface and binder removed from concrete base in resurfacing work will be paid for at the price named in paragraph 16 of the specifications, and such material will become the property of the contractor and be disposed of by him unless the engineer commissioner should elect to retain title to any of this material, in which event the contractor will for the price named deliver the same to a distance not to exceed 2 miles from the site of the work. Where the old payement, base, and surface is removed for the purpose of laying a new payement the material will be the property of the District, and the work will be paid for at the prices named in paragraph 16 of the specifications. Granite blocks, cobble, old curb, etc., must be removed to the nearest property yard or to such place within the section of the city being repaired as the engineer commissioner may direct.

#### ASPHALT PAVEMENTS.

5. Grading and subgrade.—The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trinmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling with a roller weighing not less than 5 tons and by henvy ramning at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class.

6. Concrete base.—Upon the bed thus prepared there will be laid a 6-inch foundation of concrete as directed, made of the following materials by volume: 1 part Portland cement. 3 parts sand, 7 parts gravel; broken stone, run of the crusher, may be substituted for part or all of the gravel, at the option of the

contractor.

(a) Cement.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer or used by the contractor on other work without the consent of the engineer commissioner. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time as the engineer commissioner may think necessary. The cement while in storage or upon the work, or while being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 40 days after notifying the inspector of asphalt and cements, before it can be used on the streets, if deemed advisable by the engineer commissioner. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and charge said contractor with the cost of same at the rate of \$1.50 per barrel of Portland cement for each and every barrel so furnished and collect the amount due therefor from any moneys found to be due to said contractor by the District. All cement sacks are to be returned by the contractor, and for those not returned or not in good condition a charge of 10 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time not exceeding 28 days as the engineer commissioner may

think necessary; said tests to be conducted in accordance with the methods prescribed in circular 33 of the Bureau of Standards, United States Government specifications for Portland cement.

(b) Sand.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, or other foreign matter, and not showing when shaken with water

and after subsidence more than 5 per cent, by volume, of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from

that down to pea size, well graduated.

(e) Water.—Water used for mortar and concrete shall be fresh and clean. free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

(f) Platforms.—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the

work, and kept there until used.

(g) Mixing.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cemeat be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

(h) Setting.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing

a new batch.

Each batch of concrete after being mixed shall be spread in place in borizontal layers, by means of shovels, so as to give the requisite thickness after being tamped, and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reasons for removal and replace ment of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

7. Asphalt binder.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing an inch and a quarter screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than 11 inches, and the stone, after passing the heating drums, shall not contain less than 5 nor more than 15 per cent of material passing a No. 10

screen.

The stone will be heated not higher than 350° F., in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60 to 90, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. Should it appear dull from overheating or lack of cement, it will be rejected. While hot it will be hauled upon the work, spread upon the base so that when compacted it will be at least 11 inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course now show a proper bond, it must be immediately removed and replaced by and at the expense of the contractor. Binder and top shall not be taken from the yard

to the site of the work when weather conditions are, in the judgment of the

engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather between the hours of sunset and sunrise as often as may be deemed necessary and in cold weather cover it with a material suitable for its protection.

8. Asphalt wearing surface.—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand,

and fine absorbent mineral dust.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide, and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 8-c.

(b) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking until the oil has the following characteristics: Free from water and foreign matter; flash point, not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent; the flash point shall be taken in a New

York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer, and placed in a copper holder. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline

Any other softening agents approved by the engineer commissioner may be

used in place of petroleum oil.

(c) Asphalt cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F, on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely, in the discretion of the engi-

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 850 penetration.

(2) When a briquette of the bitumen having a minimum cross section of 1 square centimeter, having a penetration of 50° to 53° at 77° F., is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking.

(3) When the bitumen is heated in an open tin box  $\frac{1}{4}$  inch deep by  $2\frac{1}{4}$  inches in diameter at a temperature of  $300^{\circ}$  F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent, and it must not have been

hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it. When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descriptions of which are on file in the office of the engineer commissioner.

(d) Sand.—The sand in use shall be free from mud, hard grained, and moderately sharp. On sifting, it should have at least 15 per cent of material that would be caught on a 40-mesh per inch screen, 25 per cent of material that will pass an 80-mesh to the inch screen, and 10 per cent, at least, must pass a 100mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased at the discretion of the engineer commissioner.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass a 30-mesh screen, and at least 85 per cent pass

a 100-mesh screen.

(f) Asphalt paving mixture.—The materials complying with the above specfications shall be mixed in proportion by weight, depending upon their character and the traffic on the street and upon the character of the asphalt, and will be determined by the engineer commissioner; but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified the mixture will be condemned, its use will not be permitted. and, if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

The sand or the mixture of sand and stone dust and the asphalt cement will be heated separately to about 300° F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphalt cement at the required temperature and in the proper proportion in a suitable apparatus, so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will be weighed in the presence of inspectors as often

as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements when required in suitable tin boxes and cans; he shall have access to all branches of the works at any time, and shall have the right to obtain samples of all materials from the

source of supply.

- (g) Laying asphalt surface.—The pavement mixture prepared in a manner thus indicated will be brought to the ground in carts or wagons at a temperature of not less than 250° or more than 350° F.; the contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 21 inches by means of hot iron rakes in such a manner as to give uniform and regular grade, so that after having received its ultimate compression it will have a net thickness of at least 1 This depth will be constantly tested by means of gauges furnished by tineer commissioner. The surface will then be compressed by steam the engineer commissioner. rollers, after which a small amount of hydraulic cement will be swept over it and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface, the street to be barricaded. Binder or topping shall not be laid when weather conditions are in the judgment of the engineer unsuitable for the work of laying the pavement. Barricades to remain for such length of time as deemed necessary by the engineer commissioner.
- 9. Asphaltic base.—Asphaltic base will be composed of clean, broken stone, free from spalls, that will pass through a 2-inch ring, well rammed, and rolled with a steam roller weighing not less than 5 tons. The rolling will be continued until the stone ceases to creep before the roller and it is evident that the final compression has been reached. It will then be thoroughly coated with asphaltic paving cement of approved quality, as directed.

10. Asphaltic concrete on concrete base.—(a) Concrete base.—The base is to conform in all respects to the specifications herein in relation to concrete base

for sheet asphalt pavements. (See paragraph 6.)
(b) Paving materials.—The paving materials shall be composed of crushed trap-rock screenings, concrete sand, and mineral dust in the following proportions. Trap-rock screenings, 2 parts; concrete sand, 1 part; and mineral dust at least 5 per cent of the above aggregate; mixed with asphalt cement. The various constituents of the mineral aggregate and asphalt cement shall be of the same kind and conform to District specifications for such materials for the year ending June 30, 1913, as follows:

(c) Trap rock.—The trap rock shall be of a quality to be approved by the engineer and shall be equal to that used by the District of Columbia for mac-

adam roadways. The crushed stone will vary in size from 1 inch to screenings and shail be devoid of dust.

(d) Sand.—The sand shall be hard grained and moderately sharp. shifting it should have at least 25 per cent of material that would be caught on a 20-mesh per inch screen and 5 per cent of material that will pass an 80-mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass a 30-mesh screen, and at least 85 per cent pass a

100-mesh screen.

(f) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts

of the flux to produce the asphalt cement described in paragraph 10-h.

(g) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillawater and foreign matter; flash point, not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent; the flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and placed in copper holder. The residue in the retort, after distilling, must be fluid at 75° F. and not coarsely crys-

talline on cooling.

Any other softening agents approved by the engineer commissioner may be

used in place of petroleum oil.

(h) Asphaltic cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetra-

tion to be fixed by the engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely, in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer

than 350 penetration.

(2) When a briquette of the bitumen having a minimum cross section of 1 square centimeter, having a penetration of 50° to 53° at 77° F., is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking.

(3) When the bitumen is heated in an open tin box three-fourths inch deep by 21 inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven, it must not show a loss by volatilization of over 5 per cent and it must not have

been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it. When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition, it must be thoroughly agitated before drawing from storage and while in use in the supply kettles, so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, de-

scriptions of which are on file in the office of the engineer commissioner.



(i) Asphaltic concrete paving mixture.—The materials complying with the above specifications shall be mixed in proportions by volume depending upon their character and the traffic on the street, and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 7 to 9 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned, its use will not be permitted, and, if already placed on the streets, it must be removed and re-

placed by proper materials at the expense of the contractor. (f) Laying asphaltic concrete surface.—The stone and paving cement shall be heated separately to a temperature of about 300°, and shall be thoroughly mixed while hot by machinery. The proportion of paving cement shall be sufficient to thoroughly coat each particle of the aggregate, and the entire mixture shall be subject to the approval of the engineer. The mixture will be hauled while bot to the site of the work and shall be covered until deposited on the street. The temperature at the time of dumping shall not be less than 220°. The hot mixture shall be evenly spread with hot tools upon the base to such a thickness as will make a layer 2 inches in thickness after rolling. It shall then be rolled with a steam roller weighing not less than 1 ton per foot of tread of roller until no further compression occurs. After the rolling of the asphaltic-concrete wearing surface has been completed, there shall be spread over such surface a thin coating of asphaltic cement as used in surface not to exceed on an average a quarter of a gallon to the square yard, of such consistency as shall be approved. which shall be thoroughly brushed into the wearing surface, so as to fill all voids and smooth out any minor unevenness of the said surface. There shall then be spread over and rolled into this flush coat a thin layer of trap screenings, so far as practicable, devoid of dust, in size from three-eighths inch down, whose use shall be to the end of securing a gritty, no-slippery surface. The finished surface shall be free from lumps or depressions and shall be true to the required cross section. The street to be barricaded. Barricades to remain for such length of time as deemed necessary by the engineer commissioner.

11. Asphaltic concrete on broken-stone base.—A surface coat of asphaltic concrete complying in all respects to the specifications for asphaltic concrete on concrete base is to be laid on a base of broken stone or gravel. The base will be furnished by the District of Columbia, in place and rolled, rendy for surfacing. The price bid will include supplying, mixing, placing, and rolling the asphaltic

concrete surface.

12. Resurfacing over asphalt and coal-tar pavements.—The foregoing specifications shall also apply, as far as practicable, to all work of resurfacing. Where the binder coat can not be made of uniform thickness, it will be paid for by the

cubic foot

13. Ordinary repairs.—Should the commissioners exercise their right under paragraph 1 of these specifications to require minor repairs and miscellaneous work to be done by this contractor, the same will include the repairing of all asphalt and coal-tar pavements where defective, due to wear or accident; the repairs of all cuts such as those made for tapping sewers, water pipes, etc.; and generally all patching and miscellaneous work necessary to keep the pavements in good condition for travel during the contract period.

(a) The repairs shall be made at such times and places and in such manner as may be directed and when deemed necessary on certain streets between the hours of 8 p. m. and 8 a. m. All old material shall be cut out and removed at the contractor's expense, and in the case of undercuts any overhanging portion

shall be removed.

(b) Except in special cases, the base of the pavement over all cuts will be laid by the District and the surface and binder only by the contractor. The engineer commissioner may, however, call upon the contractor to lay the base wherever he may deem it advisable.

(c) The holes cut out shall be cleaned and the edges painted with hot paving cement, of such quality as may be acceptable to the engineer commissioner.

(d) Barricades of a suitable form to prevent traffic over recently laid work shall be provided and kept in place until the surface has hardened sufficiently to withstand pressure. These barricades and their use must be subject to the approval of the engineer commissioner.

(e) Work in repairing over plumber, electric light, and similar cuts will be done immediately on receipt of written order from the engineer commissioner.

(f) Any work of repairs to pavement for which street railway companies are responsible, and which may be ordered under this contract by the proper and

thority, shall conform to these specifications and be paid for at the prices named in items 6 and 7 of the contract prices herein. In case any railway company shall fail or refuse to pay the sum due from said company in respect of work done by or under the orders of the proper officials of the District of Columbia, certificate of indebtedness against said railway company will be issued to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said company in accordance with existing laws.

14. Heasurement.—Asphalt top and asphalt binder specified herein to be paid for by the cubic foot shall be measured on the basis of the box or measure used at the plant for measuring the sand in the case of top mixture and the stone in the case of binder mixture. In the case of asphalt top mixture the actual net contents of the box as filled with sand will determine the amount of resultant top mixture to be paid for, and in the case of binder stone 92 per cent of the actual net contents of the box as filled with binder stone will determine the amount of resultant binder to be paid for, and payments on these bases will be

15. Additional work.—The following specifications will cover incidental work which may be required of the contractor in connection with the work of re-

newal, resurfacing, and repairs:
(a) Laying vitrified block.—Vitrified-block gutters will ordinarily be 18 inches wide, laid on a concrete base 6 inches in depth, of the same material and proportions and laid in the same manner as prescribed in these specifications for the concrete base under asphalt pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 4 parts of the sand specified in paragraph 6-b and 1 part of Portland cement, thoroughly mixed, will be spread thereon, as a bed for the paving blocks, to the depth of not less than one-half inch, and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed thus prepared for them the blocks will be set on edge, with the longest dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a

lap of not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several courses and ramming the plank with a heavy rammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a

thin, easily flowing grout of neat Portland cement.

A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will, in that case, extend to the bottom of the crosstles, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards

and must be hauled to the work at his expense.

- (b) Setting 6 by 20 inch granite and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench in width will be 14 inches from the curb line toward the building line of the street and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set and brought to line and grade with plumb face. Spalls of stone, hard-burned brick, or other acceptable substance, prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently, and afford a firm and stable support for it, without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade, the trench will be filled with gravel of approved quality, to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made and the lines and grades furnished strictly
- (c) Setting 8 by 8 inch granite curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set, and 18 inches wide, will be excavated to receive the concrete and the curb. The dimensions of the trench in width will be 14

inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In the trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above, the curb will be placed before the concrete has set and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly-made concrete, by the use of heavy wooden mauls. The face of the curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade, the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrifiedblock gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(d) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its

trench, if so ordered by the engineer.

(e) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to embed the stone and back and adjus it to line and

(f) General instructions.—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for or improperly disposed of or damaged or broken through careless or unskilled handling will be charged against him, and the value of the loss to the District will be deducted from any amount due the con-

tractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb, the portion so disturbed shall be repayed, if required by the engineer,

without cost to the District.

16. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:
(1) Removing old curb, including haul not to exceed 2 miles, 8 cents per

linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile (3) Hauling from District property yard and setting 6 by 20 inch curb. 25

cents per linear foot.

- (4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per linear foot.
- (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.
  - (6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
    (7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
- (8) Dressing, jointing, and cutting curb. etc. (stonecutters' time), including setting-up labor, 65 cents per hour.
- (9) Removing old rubble, cobble, flagging stone and brick, vitrified block of brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.

(10) Removing old asphalt blocks, including haul not to exceed 2 miles, 20

cents per square vard.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.

(12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter

mile or fraction thereof.

(13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard. (14) Grading and hauling earth not to exceed 1,000 feet, 55 cents per cubic

(15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per

(16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.

- (17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.
- (18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (19) Hauling excavated material, per 100 feet over first 1,000 feet, 1 cent per cubic yard.
- (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (21) Laying or relaying vitrified brick or block on old concrete base, 60 cents
- per square yard. (22) Laying and relaying asphalt block and vitrified brick or block on gravel
- base, 40 cents per square yard. (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
  - (24) Laying and relaying granite block, 75 cents per square yard.
  - (25) Relaying cobble and rubble, 30 cents per square yard.
  - (26) Repairing cement walks. \$1.50 per square yard. (27) Repairing brick walks, 25 cents per square yard.
  - (28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
  - (29) Laying Portland cement concrete base in place, \$5 per cubic yard. (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.

(31) Adjusting water-valve casings to grade, \$3 each.

(82) Adjusting electric light or telephone manhole tops to grade, as follows:

(a) Size 14 by 18 inches, \$1 each.
(b) Size 36 by 36 inches, \$1.50 each.

(c) Size 6 by 6 feet, \$4 each.

17. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

18. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs), or on the cost of grading, the removal of old materials and of the overhaul on the same, and of stonecutting.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and re-lay them with new material of approved quality. The engineer commissioner

shall decide the question of inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when

ordered by the engineer commissioner.

19. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so, the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

20. Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners

before the work is begun.

21. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

### SPECIFICATIONS FOR LAYING CEMENT SIDEWALKS.

1. Classes A and B.—Work under class A will consist of all large work located on streets, avenues, places, etc., within the limits of the city of Washington (including Georgetown or West Washington), and all work on streets, avenues, places, etc., beyond said limits where the roadways are paved. Work under class B will consist of all large work located on streets, avenues, places, etc., outside the limits of the city of Washington, as above, where the roadways are not paved, and of all small work wherever located. For classification for purposes of payment under this contract any item of work which exceeds 100 square yards will be rated and paid for as "large work," items of 100 square yards or less being rated as "small work." The aggregate of the item will be the determining consideration, since it may consist of two or more detached pieces in the same vicinity. Any questions as to the classification under this paragraph will be decided by the engineer commissioner.

2. Grading.—The contractor is to make such cutting and filling as may be necessary to bring the foundation, when compacted, to the level of 5 inches below the surface of the finished pavement. Grading, either cut or fill, to the needed depth, not exceeding 1 foot on the average for each separate piece of work, and including the area of tree spaces, either continuous or interrupted, must be done without additional or extra charge, inclusive of removal and haul to designated property yard of all sidewalk material between the curb line and the back of the new work, whether the old sidewalk is wholly replaced by the

new cement part or not.

Grading in excess of the 1-foot average depth will be paid for as additional

work at prices stated herein.

Material for filling must be suitable for the purpose and satisfactory to the engineer, and must be placed in layers and compacted for making good foundation, as required by him.

In case of excavation any unsuitable or objectional material in the bed, as determined by the engineer, is to be wholly removed and the spaces filled with

broken stone or other suitable material satisfactory to him.

The contractor is to trim the bed so as to make it parallel to the surface of the finished pavement and thoroughly compact the bed by rolling or ramming without extra pay.

On the bed thus prepared will be laid, after compacting, 4 inches of cement concrete and 1 inch of cement mortar covered by a thin, dry surface coat, all

made of the materials and in the manner hereafter described.

3. Cement.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The

engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time as the engineer commissioner may think necessary. The cement while in storage or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 40 days after notifying the inspector of asphalt and cements before it can be used on the streets, if deemed advisable by the engineer commissioner. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse, and charge said contractor with the cost of same at the rate of \$1.50 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time not exceeding 28 days as the engineer commissioner may think necessary, said tests to be conducted in accordance with the methods prescribed in circular 33 of the Bureau of Standards, United States Government specifications for Portland cement.

4. Sand.—The sand used shall be clean and sharp, from fine to coarse, free from sewerage, mud, clay, mica, paper, leaves, chips, and other foreign matter, but may show when shaken with water and after subsidence not more than 3 per cent by volume of silt or loam. Sand used for surface layer must be screened on line of work, screen to be used for this purpose to be designated by the engineer. Sand stored at the work shall, when required, be dumped on boards or other suitable platform and kept as clean as when delivered.

5. Gravel.—The gravel shall be from small to medium size and as good in quality as the best Potomac River washed gravel. The gravel shall be free from dust, dirt, chips, leaves, and other foreign or objectionable matter, and when required shall be dumped on boards and cared for as provided for sand in the

preceding paragraph.

6. Mortar and concrete.—The mortar shall be composed of the cement and sand in the proportion of 1 to 2 by volume, thoroughly mixed dry; a sufficient quantity of water will be added afterwards by fine sprinkling, to form upon remixing a stiff plastic paste. The proportions are intended to secure a mortar in which every particle of sand is enveloped by cement and all voids in the gravel filled with mortar, and this result must be obtained to the satisfaction of the engineer. If the mixing be by hand, it shall be done on a water-tight platform with tight, raised edges, and the cement spread first. No batch shall contain more than one barrel of cement.

The mixing shall be done by the use of shovels, hoes, and rakes until a thoroughly uniform mortar of proper consistency, as above described, is secured.

7. Concrete.—To the mortar, made as above directed, shall be added 5 parts by volume of the specified gravel, which shall have been thoroughly drenched with water just before it is added to the mortar. The drenching shall not be done in the barrow, nor otherwise to permit the addition of free water to the mortar. Each batch of concrete shall be thoroughly mixed until each piece of gravel is wholly coated with mortar and in a manner satisfactory to the engineer. If the mixing be by hand, it shall be done on a water-tight platform, with tight, raised edges, and in the mixing the gravel shall be first spread over the mortar. The concrete immediately after mixing will be spread upon the foundation, so that the mortar shall remain evenly incorporated with the gravel and then thoroughly compacted by ramming. The slab or flag divisions are then to be marked off to the size and markings cut 3 inches deep. The space made by the cutting tool shall be immediately filled with dry sand and well rammed. Should the contractor so desire, he will be permitted to substitute broken stone for the gravel used in concrete. Such stone should be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter and may be the run of the crusher, containing not over 1 per cent of material passing a No. 70 sieve. It shall be free from foreign substances, as provided for gravel.

8. Mortar and surface.—Mortar for the surface layer shall be made of the specified cement and sand, mixed in the manner as for mortar for concrete, but in the proportion of 2 to 3 by volume. The mortar shall be spread while fresh upon the concrete base while the latter is still soft and adhesive and before it shall have reached its first set, in such quantity that after thorough manipulation it shall be 1 inch in thickness. It is then to be leveled off and beaten with wooden battens, so as to break any air cells and make the surfacing perfectly solid and at the true grade. No pavement marked by sand which has been spread over it for protection will be accepted.

9. Dry coat.—A coating of dry cement and fine sand in equal proportions by volume and such part and kind of coloring matter as the engineer may direct, thoroughly mixed, is then to be floated into the layer, and by a skillful use of tools the surface is to be made smooth. The joints of the blocks will then be made to a depth of one-half inch immediately over the joints in the concrete base and the blocks brought to a true line and grade and finished without marginal line with trowels to the satisfaction of the engineer. The trowel finish above described will be the rule of the work, but in such cases as may require it for the sake of uniformity, with adjacent pavements or other sufficient ressons, the use of marginal lines and a rolled finish may be required. The decision as to the finish to be used will be made by the engineer.

Any lack of compaction between the concrete and mortar layers shall be sufficient reason for requiring entire removal and the substitution of new and

satisfactory work.

10. Protection of work.—The pavement is to be kept moist, protected against the weather, and guarded against foot travel until it has set. Care shall be taken at all times not to interfere with business or travel more than is absolutely necessary for faithful execution of the work. Free ingress and egress from the street to entrances to premises fronting on the sidewalk shall be provided for at all times, and during the time that travel is closed the contractor shall provide a temporary walk and keep it in good condition, safe for pedetrians and easy of access from adjoining walks or roadways. The contractor will not be allowed to obstruct private driveways or approaches or to dig up or occupy the streets by material more than is absolutely necessary for the prosecution of the work. Special care will be taken to inconvenience the public as little as possible. The contractor will be held responsible for all injury done to the work in any way until it has been accepted and measured by the engineer.

11. Driveways.—Driveways shall be laid the same as sidewalks, except that

11. Driveways.—Driveways shall be laid the same as sidewalks, except that the surface shall be divided into small squares as in K Street NW. near Connecticut Avenue. The plan of driveways shall be as directed by the engineer.

12. Tree spaces.—Tree spaces will be left as directed. These spaces and also other edges of the work not abutting against curb, poles, or straight lines of parking, terrace, or coping will be outlined by planed boards of sound pine, 5 inches deep, set on edge to true line, and with top edge even with the pavement surface.

The edges of the new pavement not joining a curb or coping are to be clearly cut down on a true line 1 inch below the finished surface. The edges adjacent to interrupted tree spaces are to be plaster finished. The area of the tree space, either continuous or interrupted, is to be filled with earth up to the level of the pavement.

13. Plumbing.—All preliminary plumbing work will be done by the District. The contractor will be held responsible for all plumbing appurtenances within the limits of the finished sidewalk being at its grade and for any damage or

obstruction thereto due to his operation.

14. Cleaning work.—Before acceptance of the work it will be cleaned and all débris and unused material removed. No crumbling or uneven edges of the sidewalk will be allowed to remain. Pine strips at edges of concrete will not be removed before 48 hours after the pavement is laid, or a longer period if the condition of the pavement, in the judgment of the engineer, requires it.

15. Inspection of work.—The engineer will appoint an inspector to see that each piece of work, including curb work, is graded and laid according to specifications and directions. The District will not pay for any work done during

the absence of the inspector.

16. General instructions.—All curb will be furnished to the contractor at the District property yard and will be hauled by him to the site of the work; any curbing unaccounted for or improperly disposed of or damaged or broken through careless or unskilled handling will be charged against him, and the

value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concerete, and all other material and labor necessary to execute the work in accordance with the specifications therefor are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb. the portion so disturbed shall be repaved, if required by the engineer,

without cost to the District.

17. Additional work.—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

 Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

- (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile
- or fraction thereof.

  (3) Hauling from District property yard and setting 6 by 20 inch curb, class
- A, 25 cents per linear foot.

  (4) Hauling from District property yard and setting 6 by 20 inch curb, class
- B, 28 cents per linear foot.
  - (5) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.
    (6) Realigning 6 by 20 inch and bluestone curb, 15 cents per linear foot.
- (7) Hauling from District property yard and setting 8 by 8 inch curb, class A, 35 cents per linear foot.
- (8) Hauling from District property yard and setting 8 by 8 inch curb, class B, 38 cents per linear foot.
  - (9) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
- (10) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
  (11) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.
- (12) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.
- (13) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.
- (14) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.

(15) Hauling same beyond distance of 2 miles, 1 cent per square yard per

quarter mile or fraction thereof.

- (16) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
- (17) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
  (18) Removing old coal-tar and bituminous pavement or base and hauling not
- to exceed 1,000 feet, \$1 per cubic yard.

  (19) Removing old concrete base and hauling not to exceed 1,000 feet, \$1,50
- (19) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per cubic yard.
- (20) Hauling excavated material, per 100 feet over first 1,000 feet, 1 cent per cubic yard.
- (21) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30 per square yard.
- (22) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (23) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
- (24) Cleaning old vitrified brick or block for relaying, 25 cents per square 7 and.
  - (25) Laying and relaying granite block, 75 cents per square yard.
  - (28) Relaying cobble and rubble, 30 cents per square yard.

(27) Repairing brick walks, 25 cents per square yard.

(28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
(29) Laying Portland cement concrete base in place, \$5 per square yard.

(30) Adjusting man-hole tops and basin covers to grade, \$1.50 each.

(31) Adjusting water-valve casings to grade, \$3 each.

(32) Adjusting electric-light or telephone man-hole tops to grade, as follows:

(a) Size, 14 by 18 inches, \$1 each.

(b) Size, 36 by 36 inches, \$1.50 each.

(c) Size, 6 by 6 feet, \$4 each.

(d) Size, 6 by 6 foot manholes, with 36 by 36 inch covers, set on I

beams in concrete, \$7 each.

The work of repairing cuts in cement walks, which has in recent years been done under these specifications, will be otherwise arranged for and will not be done by this contractor.

The repaying of all roadway pavements necessarily disturbed in setting or

resetting curb will be done by the District without cost to the contractor.

The setting and resetting of the curb shall be done according to current District of Columbia specifications for such work.

The old curb may be removed and reset to grade and line, or the old curb may be realigned without removing it from place, as required by the engineer.

18. Existing brick walks abutting the ends of new cement walks are to be relaid, if necessary, without cost to the District, in such manner as to make them conform to the grade, etc., of the new walks in a manner satisfactory to the engineer.

19. Amount of work.—The work to be done under this contract consists in laying cement sidewalks in such places and in such order as may be directed by the commissioners, under appropriations for the fiscal year ending June 30, 1915, except as related below. The amount of work to be done under this contract can not be stated with any precision, but as an indication of what is anticipated the amount of the contractor's bond will be determined on the basis of 70,000 square yards. No guaranty is given that the quantity here stated will be equalled or may not be exceeded. The bids will be classified and award of contract based on 40,000 square yards of class A and 30,000 square yards of class B.

This contract will not include that small amount of public-sidewalk construction which, on account of its urgency, has in the past been customarily laid by private parties under permit, but which in the future it is intended to have laid by the District's day-labor organization. This work has not been included in past contracts for the reason that it has been done by private agents, and will not be included in this contract because, for purposes of good administration, it will be done by the District by day labor.

will be done by the District by day labor.

20. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, arising out of any modification of these specifications that may appear necessary, and for this he will be paid at current rates for work of similar character, or, if the extra work should be of a class for which rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent, the contractor shall have no claim for compensation for extra work unless the same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

21. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. This date shall be the date of the final voucher for each street hereunder. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on the cost of grading or the removal of old materials, and of the overhaul on the same and of stonecutting.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality and in accordance with these specifications. The engineer commissioner shall decide the question of inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections, depressions, and unevenness of surface, alignment and grade of curbs, sidewalks, etc., must be corrected where and to such an extent as the

engineer commissioner shall direct, upon which the engineer commissioner will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered by the engineer.

22. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purposes provided by law for the purpose of maintaining the work in repair and making good any defects dis-

covered during the period specified.

In the event of the contractor failing to make such necessary repairs after notice to do so, the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

23. Site of work.—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any additional difficulties which may arise, either affecting the original construction or maintenance of the finished

work.

24. Certificates of indebtedness against street railway companies will be given to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said companies in accordance with existing laws.

25. Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before

the work is begun.

26. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for sald modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

### SPECIFICATIONS FOR TRUNK SEWERS.

1. Location .-

2. Bids.—The contractor shall, for the price or prices bid, do all the work prescribed in these specifications; make the requisite excavations for building the sewer and the appertaining structures and connections; shall do all ditching, diking, pumping, bailing, and draining, all sheeting, bracing, and shoring; shall make all provisions necessary to maintain and protect adjacent buildings, fences, trees, gas pipes, water courses, conduits, culverts, sewers, railways, electric lines, and other structures, and shall repair all damages to the same which may result from his operations; shall provide all bridges, fences, or other means of maintaining and protecting travel on intercepted streets, roads, and railroads, and on streets or roads in which the trenches are excavated, after giving due notice to parties affected thereby; shall maintain the same in good and safe condition so long as may be necessary, and shall then remove such temporary expedients and restore such ways to their proper condition; shall provide watchmen, red lights, fences, and all other precautionary measures necessary to the protection of persons and property; shall provide all necessary centers, molds, and forms; shall construct all foundations, all brick, concrete, stone, and timber work; shall set in place all ironwork and refill all trenches; shall furnish all materials (except those specially mentioned in par. 13), and all tools, implements, labor, and transportation required to build and put the sewer in complete working order; and shall do each and all to the satisfaction of the engineer.

The prices bid are to include the cost of the removal of and delay or damages occasioned by trees, roots, timber or masonry structure, or other obstacles

(whether shown on the plans or not) except rock.

For lumber left in trench no payment shall be allowed unless the same shall be specifically directed by the engineer prior to the refilling of the trench. The contractor ordinarily will use his judgment about leaving bracing lumber in place, but shall be in all cases responsible for any injury which may result to the sewer or to adjacent pavements, structures, water, gas, or other conduits by the removal of bracing, sheeting, or shoring.

8. Drawings.—The drawings which illustrate the work to be performed and which show the location, shapes, dimensions, and materials of the sewer to be constructed are on file in the engineer department. All work executed under

this contract must conform with these drawings.

Should the position of pipes and other underground objects be found to differ from that indicated on the drawings, or if it shall be found necessary to modify the lines, grades, or positions, the contractor shall have no claim for extra compensation on that account.

4. Order of work.—The work shall be prosecuted in such order as the engineer shall direct. He shall determine whether the conditions are favorable for working, and may suspend the work or any portion of it whenever, in his opinion,

the conditions are such as will not insure first-class construction.

5. Street occupancy and traffic.—The operations of the sewer contractor must be so conducted that traffic upon steam and street railways and ordinary street traffic may be maintained. All material excavated must be removed from the

street or deposited as back filling upon completed work.

6. Pavements.—All pavements disturbed in doing sewer work for the width of the trenches, as defined in section 8 of these specifications, will be relaid by the commissioners. The contractor shall, without cost to the District, haul all cobble, rubble, bricks, blocks, and tiles taken up by him to a property yard to be designated by the engineer, and take receipt therefor. Macadam, hydraulic base, and sheet pavement material removed shall be piled in suitable places along the line of the work so as not to cause unnecessary obstruction of any kind, and during the progress of the work shall be guarded by the contractor against misappropriation. Whenever so ordered by the engineer, the contractor shall haul this material to a property yard to be designated by the engineer. No paving material of any kind removed in making excavation shall be used or appropriated by the contractor without written permission from the engineer.

If any pavement be injured by the contractor outside the limits prescribed by the trenches the cost of restoring such excess shall be charged against him and deducted from any amount found due him. He will maintain the surface over the line of the trench up to the street grade with the best material obtainable from the excavation until such time as the pavement is relaid. The cost of subsequent repairs of all pavements relaid over or adjacent to sewer trenches on account of sewer work, or of any work made necessary, within the period of one year, for which the sewer and their appurtenances are guaranteed, by settlement of the back filling of the trenches will be charged against the 10 per cent retained and invested as provided in paragraph 9 of the instructions to bidders.

7. Private property.—Care shall be taken not to move without the consent of the person owning or controlling them any trees, fences, water or gas pipes, sewers, drains, conduits, poles or wires for electrical purposes, railways, or other structures, and in crossing or working near them they shall be sustained securely in place until the work is completed, and shall be so treated as to render their condition as efficient and permanent as before.

In sewer construction along a right of way through public or private property the contractor shall so conduct his work as not to damage said property, and so as to interfere with its ordinary use as little as possible; he shall, upon completion of the sewer, restore the surface as nearly as possible to the condition in which he found it. No material shall be used or removed from the premises without the consent of the owner or responsible party in charge of the property.

8. Measurements.—Measurements of work shall be made as follows: Length: The length of sewer paid for by length, and the length of excavation shall be the whole length of the completed sewer without deduction for the space occupied by manholes.

Width: The width of the trench at any cross section shall be considered as equal to the greatest horizontal diameter of the sewer at that cross section,

including the walls thereof, with 9 inches added thereto.

Depth: The depth at any cross section shall be considered as equal to the mean depth from the surface to the outside bottom of the sewer at that section.

In submitting proposals bidders will be guided by the profiles given upon the drawings. These are approximate and any variance therefrom shall not be the basis of any claim for compensation above that provided for in the contract

9. Trenches.—The ground shall be excavated in open trenches to such width and depth as may be necessary for proper sewer construction. If, however, in the judgment of the engineer, it is deemed advisable, special permission may be given for the construction of portions of the work in tunnel, in which case excavation will be allowed as if construction were in open trench. But at any time during such construction the engineer may direct the excavation to be made in open trench.

The portion of the trench below the springing line of the sewer shall be excavated to conform to the external form and dimensions of the same. If the character of the ground met with in excavating is such that the external form of the sewer can not be preserved, the excavation shall be made to conform as nearly as possible to the external shape and dimensions of the sewer, and the space between the external sewer lines and the bottom and sides of the excavation as made, for a width equal to the greatest outside horizontal diameter of the sewer, shall be filled with hydraulic cement, concrete, or brick masonry, as directed.

If the material found in the sewer trench be, in the opinion of the engineer, unsuitable for a foundation, upon receipt of a written order it shall be removed by the contractor to such depth and width as may be directed, and suitable material shall be deposited in its place. This additional excavation and deposited material will be paid for as extra work.

The utmost care shall be taken to spare the roots of shade trees and to protect trees and shrubbery in public parks adjacent to line of work from injury. Also care must be taken to avoid unnecessary damages to park surfaces and

roadways during construction.

Whenever it is necessary to intercept work near or in any way interfere with any public or house sewer, drain, pipe, catch basin, culvert, or other similar structure, the contractor shall maintain the same in working order and shall repair and make good any damage done to or by any of them during the progress of the work.

During construction permission may be secured to substitute for any sewer in use which is affected by the work hereby contracted for a drain upon an approved location of equal capacity and of substantial construction, subject in

all particulars to the approval of the engineer.

10. Rock.—Only such ledge or rock as in the opinion of the engineer requires blasting for its removal or bowlders of one-half cubic yard or more in volume which are removed from the trench will be estimated as rock excavation. Before beginning rock excavation the contractor must procure a written order from the engineer. All excavated material shall be considered and classed as ordinary excavation, except rock removed by special orders as above. Indurated gravel, loose or disintegrated rock, and materials of like character in the opinion of the engineer will not be classed as rock.

For rock excavated from trench \$3 per cubic yard will be allowed the contractor, and excavation classified as rock will not be included also as ordinary

excavation.

11. Blasting.—Before blasting, the contractor must procure a written order

from the engineer.

Blasts shall be covered with heavy timbers chained together. Caps or other explosives shall in no case be kept in the same place in which dynamite or other explosives are stored, and, in general, the precaution against accidents from blasting shall be entirely satisfactory to the engineer. The contractor shall be liable for all damages to persons or property caused by blasts or explosives

12. Back filling.—The back filling must be brought up evenly on both sides of the sewer with the best material from the excavation, so that no unbalanced pressure shall be brought upon the masonry. It shall be spread in horizontal layers not exceeding 6 inches in depth before ramming and thoroughly rammed to the top of the trench. No less than 2 men shall be employed in ramming for each shoveler engaged in replacing the back filling, which shall be compactly with iron-shod rammers, each weighing not less than 12 pounds. When the back filling is deposited by means of wheelbarrows, carts, or wagons, or by machinery, the ramming shall be done as directed by the engineer.

All slides or caving of sides of the trenches or cuts shall be taken out and

back filled by the contractor.

As the trench is refilled, the bracing, etc., shall be removed in such manner as to prevent the caving of the sides of the trench. If sheeting is used, so much of it as extends below the crown of the arch of the basin must be withdrawn, unless otherwise directed by the engineer, after refilling over the haunches but before more than 6 inches of earth is placed on the crown of arch and before the center is struck

As the sheet planks are withdrawn the vacancies left by each shall be carefully refilled by ramming with tools especially adapted for the purpose, by

watering, or otherwise, as may be directed.

18. Materials.—The contractor will be furnished at the District property 7ards with all the necessary sewer pipes, manbole steps, and cast-iron manbole

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tops with covers, the value of which material actually used in the work will not be charged against him. He will also be furnished at the District yards with all the cements, invert blocks, and vitrified bricks required for the work, the value of which will be charged against him at the following rates: Portland cement, \$1.50 per barrel; invert blocks, 50 cents per linear foot; vitrified bricks, \$18 per thousand.

Where cement is furnished in bags, the bags will be returned by the con-

tractor or charged against him at the rate of 11 cents each.

The contractor shall convey materials from the points where they are delivered by the commissioners and store the same in the vicinity of the works. He shall be responsible for the loss incurred or damage done to said materials from the time of their delivery until the work is accepted. No materials shall be applied to other use than that for which they are issued.

The materials from the trenches and those used in constructing the sewer appurtenances shall be so deposited as not to hinder nor endanger public travel, and so that free access may be had at all times to all fire plugs, water gates,

manholes, and catch basins in the vicinity of the work.

14. Concrete masonry.—Concrete masonry will be classified as follows:

Concrete masonry A will be composed of 1 barrel Portland cement (net weight 380 pounds), 8 cubic feet sand, 8 cubic feet pebbles, 8 cubic feet broken stone; water as directed by the engineer.

Concrete masonry B will be composed of 1 barrel Portland cement (not weight 380 pounds), 10 cubic feet sand, 10 cubic feet pebbles, 10 cubic feet

broken stone; water as directed by the engineer.

Concrete masonry C will be composed of 1 barrel Portland cement (net weight 380 pounds), 12 cubic feet sand, 12 cubic feet pebbles, 12 cubic feet broken stone; water as directed by the engineer.

Concrete masonry D will be composed of 1 barrel Portland cement (net weight 380 pounds), 8 cubic feet sand, 16 cubic feet pebbles; water as directed

by the engineer.

Concrete masonry E will be composed of 1 barrel Portland cement (net weight 380 pounds), 10 cubic feet sand, 20 cubic feet pebbles; water as directed by the engineer.

Concrete masonry F will be composed of 1 barrel Portland cement (not weight 380 pounds), 12 cubic feet sand, 24 cubic feet pebbles; water as directed

by the engineer.

Suitable appliances, satisfactory to the engineer, for measuring the ingre-

dients for each batch of concrete shall be kept on the line of the work.

15. Mixing concrete.—The thorough mixing and incorporation of all materials will be required. If done by hand labor, the dry cement and sand shall be mixed and turned over by skilled workmen with shovels not less than six times before the water is added; the pebbles and broken stone, after being wetted shall be added to the mixed cement, sand, and water. The whole mass shall then be thoroughly turned over by skilled workmen, with shovels, not less than four times, until every particle of stone is completely enveloped with mortar.

The whole operation of mixing and laying each batch shall be performed as expeditiously as possible by the aid of machinery or a sufficient number of

skilled men.

No concrete which has once set shall be used as metal for mixing a new batch 16. Placing concrete.—The concrete shall not be thrown or dumped from a height, but must be lowered in a vessel and so carefully deposited as to retain the constituents evenly incorporated, as mixed, entirely free from foreign matter of any kind.

In lowering material into the trenches care should be taken not to throw dirt upon freshly laid concrete or other masonry in place. At all stages and for all classes of work concrete and mortar must be kept as free as possible from dirt of every kind, and, if unavoidably mixed with dirt, shall be removed and replaced to the satisfaction of the engineer.

No concrete or other work shall be laid in water, and no water shall be thrown upon or allowed to flow over or rise upon masonry until the mortar has

had ample time to become set.

Each batch of concrete shall be spread in place in horizontal layers not exceeding 5 inches in thickness before ramming, and shall be at once thoroughly compacted by ramming.

When a layer of concrete has become set it will be carefully cleaned of all dirt or loose fragments, and a thin layer of mortar spread thereon before depositing the fresh concrete.

Concrete shall not be used after it has begun to show evidences of setting.

17. Molds, etc.—Strong molds, forms, and centers, satisfactory to the engineer, made to fit the curves and shapes of all work done under this contract, shall be provided by the contractor for each stage and section of the work, and when they lose their proper dimensions or shape they shall be replaced by others. Planking, forming the faces of all exposed walls, shall be so matched and placed as to give an even and uniform surface to the concrete. Before being used the molds shall be scraped clean of cement and dirt. Their setting up, striking, and general management shall conform to directions given by the engineer. For concrete inverts, where brick lining is omitted, sheet steel collapsible forms must be used. All work must be specially smooth and well filled, and no plastering will be allowed.

When, in the opinion of the engineer, it is necessary to protect the masonry from injury, the sewer shall be braced inside without any additional charge. The bracing shall be done in a manner satisfactory to the engineer, and it shall

be left in place until he shall direct its removal.

18. Water.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engi-

neer may direct.

19. Sand .- Sand for concrete and sand for mortar shall be clean, sharp sand, containing both fine and coarse grains, free from mud, sewage, mica, or other foreign matter, and at least equal in desirable qualities to the samples in the property office, District of Columbia, marked "Sample of sand for paving and concrete." and "Sample of sand for brickwork and plastering," respectively.

20. Pebbles.—Pebbles shall be from fine bank or river gravel, thoroughly screened, free from earthy or other foreign matter, and small enough to pass through a ring 1½ inches in diameter, and shall not contain more than 5 per cent

of material which shall pass through a No. 10 sieve.

21. Broken stone.—Broken stone for concrete masonry must be hard and of durable character, the run of the crusher, and it shall not contain more than 1 per cent of materials passing a No. 10 sieve. It shall be thoroughly cleansed from all foreign substances, and, if so ordered by the engineer, it shall be screened and washed. Detritus, or any material other than hard, angular fragments of stone, shall be considered a foreign substance. Every piece of stone for concrete masonry must be small enough in largest dimension to pass through a ring 2 inches in diameter.

22. Mortar.—Mortar used in this work shall be composed of Portland cement in perfect condition and loose, dry sand in the proportion of 1 barrel of cement (net weight 380 pounds), and 9 cubic feet of mortar sand, thoroughly mixed dry, and a sufficient quantity of water afterwards added to make a rather stiff paste. It shall be used within an hour after the addition of the water, but no

mortar shall be used after having become hard or set.

23. Mixing mortar.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added.

24. Platforms.—Platforms shall be provided upon which all sand, pebbles, and broken stone shall be placed when brought upon the line of the work and

there kept until used.

25. Mortar boxes.—Tight mortar boxes shall be provided by the contractor. and no mortar shall be made otherwise than in such boxes, except for concrete. No deposits of sand or mixing of mortar will be permitted upon pavements.

26. Invert blocks.—Invert blocks shall be laid true to line and grade. A concrete bed of the required shape and dimensions shall first be prepared and a layer of mortar one-half inch thick spread upon this bed. Upon this coat of mortar the blocks shall be laid, and each block shall be carefully pressed down and bedded upon the mortar so as to insure a close contact throughout the bottom and back of surface of the blocks. The joints between consecutive blocks shall

be full mortar joints and as close as practicable.

27. Vitrified bricks.—Each course of vitrified invert bricks shall be laid in full mortar joints, truly on line, and the joints upon the face of the work shall not exceed three-sixteenths inch in thickness.

28. Bricks.—Bricks used shall be of the best quality of whole new bricks, of uniform size, compact texture, burned hard and entirely through, with true surface, free from injurious cracks and flaws, tough and strong, and having a clear ring when struck together. They must have a crushing strength of not less than 4,500 pounds per square inch, and must not absorb more than 10 per cent of their weight of water, after having been thoroughly dried and then immersed for 24 hours in water. Samples will be subject to such tests as may be satisfactory to the engineer.

The bricks used upon the work must at least equal in quality the sample

bricks in the property office, District of Columbia.

The truest and smoothest bricks will be used in the face of the masonry. All bricks delivered for use shall be culled by the contractor when required. No bricks rejected in the culling shall be used in any work done under this contract.

29. Brickwork.—Bricks must be thoroughly wet by immersion immediately before laying. Every course shall be laid with a line. Every brick must be thoroughly laid in full mortar joints on bottom, side, and end, which, for each brick must be formed by one operation. In no case is the joint to be made by grouting, or by working in mortar after laying the brick. No joint shall exceed three-eighths inch in thickness. All joints on faces shall be trowel struck.

Brick masonry below the springing line in brick sewers must be well and firmly bedded upon the foundation prepared for it or upon the wall of the adjacent excavation, as the case may be; and all spaces which would otherwise exist between the outer lines of the sewer and the walls of the foundation or excavation must be filled with hydraulic cement mortar, concrete, or brick masonry, as may be directed.

All unfinished brick masonry must be "racked back" or toothed, as may be directed, and when new work is joined to the unfinished portion, the latter

must be thoroughly cleansed.

Brick masonry of sides and arches shall be bonded and keyed as directed. especial care being exercised with each ring against laying too large joints at All joints shall be normal to the section of the sewer and all "lipping" of brick must be carefully avoided.

30. Arches.—Concrete arches shall be allowed to set at least 24 hours before any back filling or other weight shall be put upon them, and no walking or working thereon shall be allowed during said time.

31. Steel reinforcement.—Steel reinforcement, where required, will be furnished by the District of Columbia and the contractor will be required to handle and place same as directed, for which he will be given an extra order

as provided for in paragraph No. 11 of the General Stipulations.

32. Plastering.—As soon as practicable after the "keying up" is completed the back of every arch of brick or concrete shall be thoroughly cleaned of dirt and loose or projecting mortar, and shall then be smoothly plastered, from the springing line to the crown, with a coat of mortar three-eights inch thick; the work to be done by skilled workmen, using tools satisfactory to the engineer. This coat shall be allowed to become fully set before any back filling is placed

or walking allowed upon it.

33. Sewer pipe.—Sewer pipe will be of the ring or plain cylindrical pattern. 34. Laying sewer pipe.—Laying pipe sewer shall be executed in the following manner: The trench shall first be excavated by the use of the prescribed form to the required depth, shape, and dimensions; concrete shall then be compactly rammed in the bottom to the required depth, and its upper surface brought to a plane lower than the grade of the sewer by thickness of the wall of the pipe. The pipe must be perfectly supported throughout its entire length upon its concrete bed; bringing the pipe to grade by means of stone, etc., will not be permitted. Concrete shall then be rammed upon the sides and haunches of the pipe to the full specified width and thickness, care being taken that no void spaces exist. The greatest care must be exercised that the alignment and grade of the pipes be not disturbed. The joints between the pipes shall be closed by pointing with stiff mortar, after which a layer of concrete shall be carried over them to a thickness of not less than 4 inches, and having a bottom width of not less than 12 inches. During the suspension of the work at night or at other times a suitable stopper shall be placed in the last pipe laid to prevent earth from washing in. No sand, mud, mortar, concrete, or other material shall be allowed on the inside of pipe sewers. Upon completion they must be left straight, clean, smooth, and in every other respect acceptable. Mortar and concrete shall be allowed to set before any back filling is placed or walking is allowed upon the sewer, and the greatest care must be taken not to disturb the pipes, haunching, and banding.

35. Manholes.—Brick manholes of the form shown on the drawing shall be

constructed in the sewers wherever ordered by the engineer.

In sewers of greater span than 3 feet, the manholes shall spring from one side of the arch; in sewers having a span of 3 feet or less, the axis of the manholes shall be directly over the center of the sewer.

Connection for public and house sewers and catch basins shall be built into

the manholes wherever required.

Each manhole shall have steps of wrought iron, built into brickwork, as shown on the drawings. Similar steps shall be built into the inverts of the sewers at the manholes as the brickwork progresses, as may be directed.

The contractor shall carefully and securely fit each manhole with a cast-iron

frame and cover, as shown on the drawings.

36. Water-tight work.—Water-tight work is required in all construction.

37. Connections.—Connections with existing sewers shall be made by the contractor according to directions given by the engineer. The right to permit the connection of any public or house sewer with a sewer under construction before completion of the latter is expressly reserved to the commissioners.

38. Replacing.—When necessary to pump sewage in replacing and laying relief sewers the material pumped shall be carried by means of hose or other water-tight conveyor to the sewer or manhole designated by the engineer, and

it shall not be allowed to flow into or over the surface.

39. Piling.—Piles are to be not less than 8 inches in diameter at the small end, of live timber, sound, straight, and free from rot, large knots, wind shakes, and all other defects. They may be of pine, spruce, white oak, or such other durable timber as the engineer may approve. They are to be well and carefully driven with small end down, plumb and true to position, by a heavy hammer, delivering blows in rapid succession, to a penetration under the last blow of one-half inch for a hammer weighing 2,000 pounds, falling 12 feet.

Each pile shall be stripped of bark, have all knots pared smooth, and shall have the lower end squared or pointed before the driving, as may be directed.

After driving, the pile shall be cut off so as to form a true and even bearing for the cap timber, which shall be fastened to each pile by a 2-inch treenail of white oak, Georgia or Florida pine, or hickory, or a 1-inch drift bolt driven through the cap and 10 inches into the head of the pile. Any pile split or otherwise injured in driving or driven out of position will be replaced by a sound one in true position. The top of any pile shall not be drawn over more than 9 inches after driving to allow capping. Any pile which is driven a greater distance from its true position than 9 inches or whose penetration exceeds inch under the last blow will be rejected and must be replaced by a pile driven adjacent thereto as directed by the engineer. While being driven, should a pile head become broomed or otherwise injured so as to prevent effective driving, the top shall be sawed off as directed. When necessary, in the judgment of the engineer, each pile shall be bound, while driving, with a strong iron band of a proper size to protect pile head. In all cases the pile must refuse for the penetration specified, with the top sufficiently above subgrade to permit cutting off all that portion of the piles split or otherwise injured in any way by the process of driving, when the pile is sawed off at subgrade. In no case will the use of a "follower" be permitted. The piles must be carefully sawed off by a horizontal cut at the required grade line. For piles rejected for any cause whatever no allowance will be made.

40. Lumber.-All lumber for use in the completed structure must be sound, straight grained, and free from sap, loose or rotten knots, wind shakes, or any other defect which would tend to impair its strength or durability; must be straight, of the dimensions given, with square edges, and uniform width and thickness throughout each piece. Each floor plank must be secured to each cap timber upon which it rests by two 6-inch spikes. All framing must be done in a thorough, workmanlike manner, and both material and workmanship will

be subject to the inspection and approval of the engineer.

41. Foremen.—The contractor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer.

All foremen, mechanics, and others employed by the contractor shall be skilled

in the several parts which are given them to do.

42. Inspection.—The contractor shall, when requested, provide the engineer with such ladders, lanterns, tools, and labor, samples, and other facilities as may be necessary for inspecting materials and work.

Imperfect materials or work which may be discovered shall be replaced or corrected immediately on the requirement of the engineer, notwithstanding that it may have been overlooked by the proper inspector, and included in a partial



payment. Materials condemned or rejected by the engineer may be branded or otherwise marked, and shall, on his demand, be at once removed to a satisfactory distance from the work. Any omission to disapprove the work at the time of inspection, or at the time of any monthly or other estimate, shall not relieve the contractor of any of his obligations, and all work, of whatever kind, which during its progress and before it is finally accepted may become damaged or prove unacceptable for any cause, shall be removed by the contractor and replaced by good and satisfactory work. If not removed within 24 hours after written notice from the engineer it shall be removed by that officer and the cost charged to the contractor and deducted from any amount due or which may become due him.

### FORMS ACCOMPANYING ALL SPECIFICATIONS.

#### GENERAL STIPULATIONS.

These stipulations are part of the specifications.

1. Bond.—Good and sufficient bond in the penal sum equal to at least 25 per cent of the estimated amount of the contract, with sureties or a surety company satisfactory to the commissioners, will be required from all contractors, guaranteeing that their contract will be faithfully performed; that the contractor or contractors will be responsible for all claims for damages to persons, property, or premises arising out of his or their operations prior to the acceptance of the finished work, and that he or they will promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in the contract. In the event that the sureties or surety company become unsatisfactory to the said commissioners they may, in their discretion, require from the contractor an additional or new bond, in the same or a lesser penal sum, with sureties or a surety company satisfactory to them and to be conditioned as above required.

Upon the failure to furnish such additional or new bond within 30 days after written notice so to do, all payments under this contract will be withheld until

such additional or new bond is furnished.

2. Transfers.—No contract or any interest therein shall be transferred by the parties to whom the award is made; such transfers will be null and void and will cause the contract to be annulled and the work to be given to other parties under the conditions mentioned herein.

3. Patents.—The contractor will be required to hold the District of Columbia harmless against all claims for the use of any patented article, process, or appliance in connection with the contract herein contemplated.

4. Contractor's risk.—All loss or damage due to negligence, or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or

from the action of the elements, will be sustained by the contractor.

5. Employees.—The contractor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer. He shall so conduct his operations as to interfere with the work of other District contractors as little as possible. The foreman, mechanics, and others employed by the contractor shall be skilled in the several parts which are given them to do.

An employee or agent of the contractor who shall use profane or abusive language to the inspector, or otherwise impede or embarrass him in the performance of his duty, or who, in the opinion of the engineer, is careless or incompetent, or obstructs the progress of the work, or disobeys or evades the instructions given by the engineer, shall be immediately discharged and not again employed without the consent of the engineer.

6. Weather.—The contractor shall suspend all work under the contract when notified by the engineer that the weather is unsuitable for carrying it on.

If work is allowed during cold or freezing weather, the contractor shall take such aditional precautions as the engineer shall require, without additional expense, and under no circumstances shall materials be used which have been injured by the weather.

7. Inspection.—Inspectors may be appointed who shall have access to all parts of the work at all times and whose duty it shall be to point out to the contractors any neglect or disregard of the specifications of the contract; but the right of final rejection of the work will not be waived at any time. Upon

all technical questions concerning the execution of the work, in accordance with the specifications and the measurements thereof, the decision of the engineer shall be final. Ordinarily one inspector will be employed by the District of Columbia for each section of the work under contract; but if, on account of any apparent disregard of the specifications, additional inspectors shall be required, they will be employed by the District of Columbia at the rate not to exceed \$6 per diem each, and the cost of same will be charged to the con-

8. Condemned work.—All materials furnished and work done not in accordance with these specifications shall be removed within 24 hours after written notice from the engineer, by and at the expense of the contractor, or, in case of failure to do so, it shall be removed by the District of Columbia and the cost thereof charged to the contractor and deducted from the amount due or which may become due him. None but the best material of the several de-

scriptions shall be used.

9. District material.—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the contractor. The contractor will be held responsible for all materials delivered to him upon requisition, and shall be charged for all materials delivered upon said requisition. Should the amount of materials actually delivered and not properly accounted for exceed the amount used upon the work, the cost to the District of the difference must be made good by the contractor and will be deducted from any moneys which may be due him.

Any material that is the property of the District that is not accounted for by the contractor to the satisfaction of the engineer will be charged against the contractor at the contract price for similar material.

10. Failure.—If the contractor shall delay or fail to commence with the delivery

of the material or the performance of the work as specified herein, or shall, in the judgment of the Commissioners of the District of Columbia, fail to prosecute faithfully and diligently the work in accordance with the specifications and requirements of this contract, then, in either case, the said commissioners shall have the power to annul this contract by giving notice in writing to that effect to the contractor, and upon the giving of such notice all payments to the contractor under this contract shall cease, and all money or reserved percentage due or to become due thereunder shall be retained by the said commissioners until the final completion and acceptance of the work herein stipulated to be done; and the said commissioners shall have the right to recover from the contractor whatever sums may be expended by the District of Columbia in completing the said contract in excess of the price herein stipulated to be paid the contractor for completing the same, and also all costs of inspection and superintendence, including all necessary traveling expenses connected therewith incurred by the said District of Columbia in excess of those payable by the said District of Columbia during the period herein allowed for the completion of the contract by the contractor, and the said commissioners may deduct all the abovementioned sums out of or from the money or reserved percentage retained as
aforesaid; and upon the giving of the said notice the said commissioners shall
be authorized to proceed to secure the performance of the work or delivery of
the materials, by contract or otherwise, in accordance with law.

11. Payment.—Payments will be made monthly, provided the progress of the
Work is retired to the process of the contractors.

work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested

as hereinbefore provided.

12. Conveniences.—The contractor shall provide, for use of the District inspectors stationed at paving plant, suitable office and testing room, with such plain furniture as may be necessary for the proper transaction of their business as agents for the District. They shall also furnish, when needed for use of laborers on line of work, necessary toilet conveniences secluded from public observation.

13. Cleaning up.—On the completion of work it shall be thoroughly cleaned

before it will be accepted.

14. Idnes.—All necessary lines and levels will be given by the engineer by means of suitable marks, and in establishing them the contractor shall provide such materials and assistance as may be required by the engineer. All marks given are to be carefully preserved, and if destroyed through carelessness the cost of replacing them shall be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

15. All loss or damage due to negligence or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of

the elements, will be sustained by the contractors.

16. Interpretation.—Any doubt as to the meaning of these specifications will be explained by the engineer, who shall have the right to correct any errors or omissions in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "commissioners" is used in these specifications it is understood to designate the Commissioners of the District of Columbia. Whenever the word "engineer" is used it is understood to designate the Engineer Commissioner of the District of Columbia, or, in his absence, his duly authorized assistants, assistant engineers, and inspectors representing him. limited by the special duties intrusted to them.

#### INSTRUCTIONS TO RIDDERS.

1. Signature.—Proposals must be signed by the bidder with the signature in full. When a firm is a bidder, the agent who signs the firm name to the proposal shall state, in addition, the names of the individuals composing the firm. When a corporation is a bidder, the person signing shall state under the laws of what State the corporation was chartered, and the name and title of the officer having authority under the by-laws to sign contracts. The proposal shall also bear the seal of the corporation attested by its secretary. Anyone signing the proposal as agent must file with it legal evidence of his authority so to do.

2. Address.—Post-office address, county, and State must be given after the

aignature.

3. Prices.—All prices must be written in words as well as expressed in figures.

In case of variation the written prices shall govern.

4. Identification of proposal.—Proposals will be placed in a sealed envelope. so marked as to indicate its contents without being opened. This envelope will be placed in another addressed to the Commissioner of the District of Columbia, Washington, D. C.; if forwarded otherwise than by mail it must be delivered to

the secretary to the Board of Commissioners.

5. Rejection of bids.—Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will cause the rejection of all proposals in which he is interested. The commissioners reserve the right to waive any informality in the proposals received, and to reject any or all proposals, or parts of a proposal, and to make the award in such manner as they consider best for the interests of the District of Columbia. Proposals received after the time advertised for opening bids will be returned unopened. No proposal will be accepted from any failing bidder or contractor known as such on the records of the District of Columbia within 20 years prior to the date of bid. No telegraphic proposal will be considered.

6. Experience.—Bidders must present satisfactory evidence that they have been regularly engaged in the business of constructing such work as they propose to execute, and in case the lowest responsible bidder has never done any work for the District of Columbia, he must, prior to the award of contract, be able to show work done by him within a distance of 1,000 miles from the District of Columbia, and may be required to pay the necessary expenses of an inspection of such work by such representatives of the District of Columbia, not exceeding two in number, as may be sent by the engineer to examine it.

7. Site of work.—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished

work.

8. Capital and plant.—Bidders must present satisfactory evidence that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for to the satisfaction of the commissioners, and

to begin it promptly when ordered.

9. Guaranty deposit.—Bidders will inclose a receipt of the collector of taxes of the District of Columbia for the amount named in the form of proposal as a guarantee of good faith, and as reasonable fixed and liquidated damages, and not as a penalty, to the District of Columbia, and which they agree to forfelt in the event of their failure to enter into contract, with good and sufficient sureties, within 10 days after notification of acceptance of their proposal.

10. Return of deposit.—Bidders' deposits will be returned on application to the chief clerk, engineer department, to unsuccessful bidders after award of contract is made and to successful bidders after execution of contract.

11. Sundays or legal holidays.—No work shall be done on Sundays or legal holidays, except in cases of emergency, and then only with the consent of the engineer, nor shall any work be done at night unless authorized in writing by the engineer.

12. Changes.—Changes, alterations, or interlineations must be explained by

footnote in proposal.

13. Withdrawals.—If a bidder wishes to withdraw his proposal, he may do so before the time fixed for the opening, without prejudice to himself, by communicating his purpose in writing to the secretary to the board of commissioners. and when reached it shall be handed to him or to his authorized agent unread.

14. Breach.—No waiver of any breach of the contract shall constitute a

waiver of any subsequent breach of any part thereof nor of the contract.

15. Laws affecting public work.—The attention of bidders is invited to the "Act regulating the retents on contracts with the District of Columbia, approved

March 31, 1908;

"That on all contracts made by the District of Columbia for construction work there shall be held a retent of ten per centum of the cost of such construction work as a guaranty fund to keep the work done under such contracts in repair, and that the terms of such contracts shall be strictly and faithfully performed. On contracts for the construction of asphalt, tar, brick, cement, or stone pavements the retent shall be held for a term of five years from the date of completion of the contract. On contracts for the construction of bridges and sewers the retent shall be held for a term of one year from the date of completion of the contract. On contracts for the construction of buildings, and other contracts for construction work, the retent shall be held until the completion of the work. All retents for one year or more shall be deposited with the Treasurer of the United States as now required by law."

Also the following clause of the act of March 3, 1887:

"That the Treasurer of the United States, as commissioner of the sinking fund of the District of Columbia, shall not be compelled hereafter to invest money retained from District contracts hereafter entered into; but may, in his discretion retain said funds without interest, or invest the same in any class of United States or District of Columbia bonds, at the request and at the risk of the contractor, whenever the sum retained on any contract shall reach the sum of \$100 or more; any sum less than \$100 shall be retained without interest as above."

Also to public act No. 82, approved February 28, 1899, relative to payment of claims for material and labor furnished for District of Columbia buildings. and to the public act relating to the limitation of the hours of daily service of laborers and mechanics upon the public works of the United States and the

District of Columbia.

All laws and regulations of the United States and of the District of Columbia. especially in so far as they relate to the protection of life and property, are to be strictly observed.

16. Eight-hour law.-The following provision, made in accordance with act of Congress, public No. 199, approved June 19, 1912, is made a part of this

contract:

"No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work under a penalty for each violation of this provision of \$5 for each laborer or mechanic for every calendar day in which he shall be required or permitted to labor more than

eight hours upon said work.

It shall be the duty of the inspector or inspectors or other employees of the District of Columbia, upon observation or investigation, forthwith to make report to the Commissioners of the District of Columbia of all violations of the provisions of this paragraph and of said act, together with the name of each laborer or mechanic who has been required or permitted to labor in violation of the provisions hereof, the day or days of such violation and the amount of penalties accruing under the provisions hereof by reason of such violation. This sum shall be withheld for the use and benefit of the District of Columbia by the auditor of the District of Columbia out of any money due the contractor. whether the violation is by the contractor or any subcontractor. Any contractor or subcontractor aggrieved by the withholding of any penalty as hereinbefore provided shall have the right within six months thereafter to appeal to the Commissioners of the District of Columbia, who shall have the power to review the action imposing the penalty, and in all such appeals from such final order whereby a contractor or subcontractor may be aggrieved by the imposition of the penalty hereinbefore provided such contractor or subcontractor may within six months after the decision of said commissioners file a claim in the Court of Claims, which shall have jurisdiction to hear and decide the matter in like manner as in other cases before said court."

Nothing in this provision shall be construed to repeal or modify the act of Congress relating to the limitation of the hours of daily service of laboren and mechanics employed upon the public works of the United States or the District of Columbia, approved August 1, 1892, as modified by act of Congress approved February 27, 1908, and June 30, 1906, and March 3, 1913.

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# Report

OF THE OPERATIONS OF THE

# Engineer Department

OF THE DISTRICT OF COLUMBIA

FOR THE YEAR ENDED
JUNE 30
1915

UNDER THE DIRECTION OF

# MAJOR CHARLES W. KUTZ

Corps of Engineers, United States Army Engineer Commissioner, District of Columbia



WASHINGTON 1915



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# EXTRACT FROM THE REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE FISCAL YEAR ENDED JUNE 30, 1915.

## Office of the Commissioners, Of the District of Columbia, Washington, December 6, 1915.

To the Senate and the House of Representatives of the United States of America in Congress assembled:

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 U. S. Stats., 108), a report of the official doings of that government for the fiscal year ended June 30, 1915.

### ROADWAY PAVEMENTS.

The accompanying table shows the area in square yards of new roadway pavements laid and old roadway pavements resurfaced during the year, with a total in square yards and miles of the various kinds of pavements at the close of the fiscal year.

Comparative statement showing character and extent of roadway pavements.

	Existing amount on June 30, 1914.		New pave- ment laid	Old pave- ments replaced	Existing amount of June 30, 1915.	
	Square yards.	Miles.	during the year (square yards).	by resur- facing (square yards).	Square yards.	Miles.
Sheet asphalt and coal tar	2, 857, 464 632, 641	151.60 31.86	63,504	1 69, 177. 59	2,920,989 594,626	154. 54 30. 17
On concrete baseOn broken-stone base	60,557 51,088	3.48 2.68	18, 151	2 6, 279. 22	78, 708 51, 088	4.58 2.68
Cement concrete	29,865 469,980	1.66 25.58	22, 182		51,997 465,685	3.00 25.24
Vitrified block	25,535 82,121	1.34			25,535 80,751	1.34 3.98
Macadam Gravel and unimproved Gutters on asphalt streets	1,969,600	122.12 166.03	10,400 3,872	4,912.42	1,990,000 208,389	123. 24 161. 42
Outters on concrete streets Pavements maintained by street	204,517 9,575		1,626	1,012.12	11,201	
railways	556,750		2,339		559,089	
Total	6,949,693	509.97			7,028,037	510. 19

Includes 24,409.91 square yards of asphalt surface laid on old base.
 Replaced old sheet asphalt and asphalt-block pavements.

The sums appropriated for expenditures during the year under this head were as follows:

For paving new roadways and repairing old roadway pavements  For the construction and repair of suburban roads	\$579,000
For the construction and repair of suburban roads	227, 500
For grading streets, avenues, and alleys	15, 000

Sheet asphalt has continued to be the material used most extensively in roadway paving, 63,504 square yards of new work of this class being laid. Concrete roadway has been laid where traffic conditions were not too severe. No asphalt block pavement was laid during the year.

Broken stone quarried at the District workhouse at Occoquan, Va., was used in laying concrete base where such use proved practicable and economical. The contracts for this work provided that such stone should be furnished contractors at an agreed price per cubic

yard delivered on wharves at Washington.

The prices paid under contract for roadways pavements during the year were as follows:

year were as ionows:
Laying sheet-asphalt pavement (21-inch asphalt surface, 2-inch binder, before compression), with 6-inch concrete base
The prices for the fiscal year 1916 are as follows:
Laying sheet-asphalt pavement (2½-inch asphalt surface, 2-inch binder, before compression), with 6-inch concrete base. \$1.49 Laying vitrified block, with 6-inch concrete base. 1.23 Laying sheet-asphalt pavement (2½-inch asphalt surface, 2-inch binder, before compression), with 5-inch concrete base. 1.43 Laying vitrified block, with 5-inch concrete base. 1.15 Allowance for stone furnished by District of Columbia: On District wharf, per cubic yard. 90 On barges alongside District wharf, per cubic yard75
The current prices for resurfacing and repairing asphalt pavements under a contract for a period of two years beginning July 1, 1914, are as follows:
Laying sheet-asphalt pavement (2½-inch asphalt surface, 2-inch binder before compression), with 6-inch concrete base, per square yard
The state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second st

Especial attention was given to the repair of the macadamized trunk highways leading out of the city to the boundary lines of the District. Bladensburg Road, North Capitol Street, Georgia Avenue, Park Road, Sherman Avenue, and Connecticut Avenue were almost completely resurfaced. Extensive repairs were made to Nichols Avenue, Rhode Island Avenue, Michigan Avenue, Wisconsin Avenue,

Belt Road, Massachusettts Avenue, and Canal Road. The reconstruc-

tion of Daniels Road was finished.

The annual cost for the repair and dust prevention of macadamized roads averages about 10 cents per square yard. The approximate cost per square yard for resurfacing macadamized roadways where not too badly worn, including the average cost of grading, is as follows, this work being done by day labor:

Per square yard. For resurfacing with water-bound macadam with 2 to 3 inches of stone.. \$0.20-\$0.30 This lasts with patching and surface treatment from 1 to 3 years, depending on the traffic. For resurfacing with bituminous macadam on the old stone base, 2 to . 50 Life probably at least 5 years, with some repair. For resurfacing with bituminous concrete on the old stone base, 2-inch Life unknown, probably 10 to 12 years, depending on base.

For laying new cement pavement 5 inches thick with tarred surface....

Life unknown, but probably at least 10 years. 1.30 1.05 For laying new bituminous concrete or standard sheet asphalt on con-1.90 crete base, about..... Life of surface about 20 years; of base, indefinite.

Approximately \$33,000 was expended during the year for surface treatments of roads with tar and oil to prevent dust and \$2,400 for watering streets not reached by surface treatments.

By the District appropriation act for the fiscal year 1915, approved July 21, 1914, one-half the cost of laying a new pavement or resurfacing a roadway, where the material used is sheet asphalt, asphalt block, asphaltic or bituminous macadam, concrete, or other fixed roadway pavement, is assessed against the abutting property to the extent of a 40-foot roadway. There is excepted from this assessment the cost of the excess of roadway over 40 feet in width, the cost of street intersections, and the cost of work within the space for which street railway companies are responsible; that is, the space between the rails and tracks and 2 feet exterior to the outer rails on each side. The abutting property is not assessed, however, for the expense of maintenance and repairs to roadways nor for a resurfaced roadway pavement unless it is necessary to completely resurface the roadway for a length of one block. No assessment is levied for a water-bound macadam roadway, this not being in the category of fixed roadway pavements.

#### MUNICIPAL ASPHALT PLANT.

The portable municipal plant, the purchase and operation of which was authorized in the appropriation acts for the fiscal years 1913 and 1914, was operated during the year with continued success. The law authorizing this plant required that the work done by it should be economically performed as compared with similar work previously done under contract. The plant is operated under the immediate direction of the commissioners in resurfacing and repairs of asphalt pavements and the repairing of macadam streets by the construction of asphalt macadam wearing surrface thereon.

The plant was operated 240 working days, with an average daily output of 725 cubic feet. The total output during the year was 174,300 cubic feet. Old material is used to a large extent in the manufacture of the output, and the quality of the material produced is very satisfactory. The cost of the product laid on the streets, as compared with the contract price of a similar product, is as follows:

	Municipal plant, per cubic foot.	Contract price per cubic foot.
Asphalt surface, class B Asphalt surface, class A Asphaltic binder, class B Asphaltic binder, class A	\$0.40 - 4723 - 346 - 376	\$9.47 .52 .30 .41

The total cost of minor repairs to sheet asphalt pavements during the year was \$41,095.95, which is at the rate of \$0.018 per square yard. This cost represents the maintenance of all asphalt pavements which are not under guaranty by contractors, the total yardage of which is 2,282,250.

## SIDEWALKS AND ALLEYS.

The sum of \$220,000 was appropriated for the paving of sidewalks and alleys and in addition the sum of \$10,000 for laying sidewalks and curbs around Government reservations and buildings. Sidewalks are paved with cement and alleys with vitrified brick or asphalt block. Thirty-two thousand one hundred and six square yards of vitrified block and 14,756 square yards of asphalt-block pavement were laid in alleys, both on a gravel base. Fifty-eight thousand one hundred and forty-four square yards of cement sidewalk were laid. One-half the cost of curbs and of sidewalk and alley paving is assessed against the abutting property. No assessment is levied for the sidewalks, alleys, and curbs laid adjacent to public reservations. Cement sidewalks are laid under contract, and alleys are paved by day labor.

The contract prices paid for laying cement sidewalks during the

year were as follows:

For the fiscal year 1916 the prices are as follows:

The initiative in the matter of paving sidewalks and alleys is generally left with the owners of abutting property, the commissioners requiring a majority petition for such work before it is ordered. Exceptions are made, however, in cases where, on account of public danger or other public reason, the paving is demanded. The law requires the commissioners to advertise for two weeks their intention to lay sidewalks and curbs and to pave alleys and to give a hearing to the property owners affected. The work is ordered subsequent to such hearing when, in the opinion of the commissioners, it is necessary for the public safety, health, comfort, and convenience. The demand for this class of construction is constant, and increased appropriations for this work could advantageously be expended.

#### BRIDGES.

The total appropriation for the construction and repair of bridges and docks was \$270,000. The principal work of this character during the year was the construction of the bridge across Rock Creek on the line of Q Street, and the beginning of work on the bridge across Rock Creek on the line of Pennsylvania Avenue.

The Q Street Bridge was practically completed, and the four bronze

buffaloes installed at the entrances on either side.

Contract was awarded for the construction of the Pennsylvania Avenue Bridge across Rock Creek, and this will probably be completed during the present calendar year. This bridge is 70 feet in width, having a reinforced concrete deck, supported by five concrete arch ribs of 200 feet span. The facing and trim are to be of North Carolina granite. After the completion of the bridge, it is required by law that the Capital Traction Co. shall place its tracks thereon, and remove its present trackage on the present M Street bridge over Rock Creek.

The work of constructing the viaduct across the street railway tracks on Benning Road has been delayed on account of the necessity for condemning land for widening the road. The plan for this structure provides for steel girders supported by concrete piers and

abutments.

Four small bridges were erected over Watts Branch, and the floors

of a number of bridges were replaced.

The bracing of the Connecticut Avenue Bridge across Klingle Road was strengthened, so that the bridge is now of ample strength and capacity for the traffic passing over it.

The replacement or reconstruction of the Aqueduct Bridge over the Potomac River, and of the Calvert Street Bridge over Rock Creek, is urgently needed, both being inadequate to properly accommodate the

traffic passing over them.

The commissioners have jurisdiction over all bridges in the District of Columbia, with the exception of the Highway Bridge across the Potomac River, which is under the jurisdiction of the Chief of Engineers, United States Army, and the Aqueduct Bridge across the Potomac River, where jurisdiction is divided, the commissioners having control of the superstructure, and the Chief of Engineers, United States Army, having control of the piers. As the commissioners must maintain a bridge department, a divided jurisdiction over bridges located within the limits of the District of Columbia is not economical. The bridges are a part of the highways of the District of Columbia, which are placed by law under the commissioners, and there seems to be no reason for excepting the two bridges above mentioned from such jurisdiction. Legislation having for its object the placing of these two bridges under the control of the commissioners has been included in the estimates for District of Columbia appropriations for the fiscal year 1917.

#### FISH WHARVES.

Contract was made for the reconstruction of the fish wharves and docks on Water Street SW., between Eleventh and Twelfth Streets, and the work is in progress. This work consists in the construction of 546 feet of concrete revetment wall, on pile foundations,

and of three wharves having an aggregate area of 22,800 square feet of surface. The wharves are to be of reinforced concrete construction with reinforced concrete floor slabs supported upon wooden piles. It is expected that this work will be completed in the early part of March, 1916.

## UNION STATION PLAZA.

All work contemplated by appropriations made by Congress for the Plaza in front of the Union Station, to be expended under the direction of the commissioners, was completed, and the islands or parks created by such improvement were transferred from the jurisdiction of the commissioners to the jurisdiction of the Chief of Engineers, United States Army, on August 4, 1915, in accordance with an act of Congress of July 1, 1898, which provides that parks created within street areas shall be under the control of the latter officer.

## SURVEYOR'S OFFICE.

The work done by the surveyor is of two classes, namely, that done for private parties and that done for the District of Columbia and the United States. The total amount of fees collected during the year for private work was \$12,817.95. The amount received during the previous fiscal year was \$13,535.90.

The amount of work done for the United States and the District of Columbia showed a large increase over that of the previous year. Among the larger projects undertaken were surveys and locating lines for the District workhouse at Occoquan, Va., and surveys in connection with the project for the reclamation and development of the

Anacostia River and Flats.

Under the appropriation of \$2,500, made for surveys of old subdivisions, such surveys have been made of square 3833, Mills Avenue and West Woodridge, Wisconsin Avenue from Georgetown to the District line, Georgia Avenue from Florida Avenue to the District Line, Benning Road, and many old boundary lines along the Anacostia River. One hundred and fifty stone monuments were planted marking the boundary lines of subdivisions in these localities, and many more will be planted when the Anacostia River survey is completed. The work is very useful in executing private surveys, and the appropriations made for the work are amply justified.

## STREET AND ALLEY EXTENSIONS.

During the year, 18 street, alley, and park condemnation cases were prepared and filed. At the close of the fiscal year there were 16 such condemnation cases in court, in 14 of which verdicts were rendered, and in 2 others the cases were dismissed. Some of the most important work was in connection with the widening of Benning Road, the widening of Georgia Avenue from Rock Creek Church Road to the District line, the widening of Cathedral Avenue and Woodley Road from Connecticut Avenue to Wisconsin Avenue, the widening of Minnesota Avenue SE., the extension of Thirteenth Street from Spring Road to Colorado Avenue, and several connecting streets.

#### TREES AND PARKINGS.

The number of trees on streets, in school yards, and on playgrounds at the close of the fiscal year was 103,135. The trees planted during the year amounted to 3,388, and those removed 2,596, making a net increase during the year of 792.

The number of trees on the streets is 102,818, and the mileage 584.18. The trees are planted on both sides of the streets, and the mileage is figured on the basis of 352 trees to the mile. The mileage

of the streets planted with trees at the end of the year was 292.09.

The amount expended for the planting and care of trees was \$43,376.21. The varieties of trees planted were elm, ash, gingko, lindens, Norway, sugar and silver maples, pin and red oaks, sycamores, and poplars.

Coordinate with tree planting, a large number of seedlings of various kinds were planted in the nursery. These seedlings, when they have attained their proper growth, which is in about four years, are used for street planting. It is estimated that from 25,000 to 28,000 young trees will be in the nurseries ready for planting during

the next four years.

But little progress was made in the general trimming of street trees, on account of the smallness of the appropriation available for

the purpose.

At the beginning of the year many trees were found infested with insects, such as the tussock moth and web worm. These trees were sprayed, and the egg masses of the tussock moth burnt from the trunks so as to prevent hatching. In April all the elms on the city streets were sprayed with arsenate of lead to prevent the destruction of foliage of this variety by the elm-leaf beetle. The lindens were also sprayed to prevent their defoliation by the web worm and the elm-leaf beetle. The work done gave very satisfactory results, and the trees are in very good condition. The unit cost of spraying is a trifle more than 7 cents per tree.

In addition to trimming and spraying, cavities in trunks and limbs of the trees were cemented in order to save them. This operation consists in the removal of decayed and diseased parts, after which

the cavity is cleansed and filled with cement.

In addition to caring for the trees, unfenced public parkings and other public space under the jurisdiction of the commissioners were kept mowed, as far as it could be done with the funds available.

#### STREET AND ALLEY CLEANING.

The street and alley cleaning division serves a population of about 353,297 and covers an area of approximately 70 square miles. It has charge of the cleaning of all streets, avenues, and alleys in the District of Columbia, except such work on the outlying county roads and suburban streets as is done under the supervision of the superintendent of county roads.

The work of street cleaning involves flushing, squeegeeing, machine and hand cleaning, and dust prevention and snow removal. The

following table shows the changes in the area cleaned over that cleaned during the preceding fiscal year:

	1915	1914
Machine cleaning.  Alley cleaning. Suburban street cleaning. White-wing cleaning. Squeegeeing. Dust prevention.	1,090,252 1,525,043 3,666,400 2,149,703	Sq. yeards. 1, 609, 006 1, 079, 989 1, 514, 190 3, 534, 709 1, 855, 908 864, 276

The machine cleaning includes the cleaning of all paved streets outside of the white-wing area every day, every other day, or every third day, depending upon the location and traffic carried. The alley cleaning includes the cleaning of all paved alleys about once a week. The suburban cleaning includes the cleaning of macadam, gravel, and unpaved streets in the part of the District not taken care of by the superintendent of county roads and unpaved alleys in the more populated suburban section about once every 10 days.

The white-wing or hand-patrol service includes the daily cleaning of streets in the central portion of the city. In addition to this hand cleaning, the poorly paved streets in the hand-patrolled section are flushed, the area amounting to 372,272 square yards. The squeegeeing includes nearly all of the smoothly paved streets in the hand-patrolled area, and this is done two or three times each week. The object of this frequent washing is to remove fine dust and scum from the pavements, which make them very slippery when slightly wet. No washing is done except on streets in the hand-patrol section, and all dirt is removed by the hand-patrol forces.

Dust prevention.—The coating of practically all the better class of unpaved suburban streets with emulsion road oil, the entire territory being treated about ten times during the year. The sprinkling of the remainder of the unpaved suburban streets is done about twice every day in dry weather, the territory under this treatment amounting

to approximately 144,400 square yards.

A change in the hand-patrol methods was introduced during the The old system was a bag carrier, carrying one bag in process g filled and a number of empty bags. These bags when filled of being filled and a number of empty bags. were left on the sidewalks or tree spaces, from which they were collected by wagons two or three times a day. This system was objectionable on account of its unsightliness and the objectionable odors, and a new type of bag carrier was adopted, the bags being held open ready for filling in a covered sheet-iron box. When the bags are filled they are taken immediately to transfer stations established in the interior of squares and left there for removal by wagons. This keeps all the bags off the streets, and in addition the hauling time is less, as the wagons have but a few fixed points to visit instead of collecting along both sides of every street throughout the entire sec-It was necessary to cut down the territory per bag carrier slightly because of this change, but the cost of the additional men is offset by the saving in collection expense, the unit costs being about the same as under the old system.

During the winter months of the year there was very little snow, and but \$3,540.68 for cleaning off snow from roadways, sidewalks, and gutters was spent. The regular street-cleaning work, however, was increased during the winter.

The use of motor vehicles for inspection showed considerable

economy over horse-drawn vehicles.

A change in the policy for dust prevention was effected during the year. Previously, practically all suburban streets were oiled, but it was found that certain streets did not respond to such treatment, and that the oiling was of little beneficial effect. The schedules were gone over and all such streets transferred to the sprinkling schedule, which treatment kept them in better condition and at less expense than oiling. Sprinkling on oil streets was also practiced in the spring before the oiling season commenced and during dry and warm spells in the late fall and winter. Such sprinkling practically eliminated all complaints from dust during the winter months.

The cost of work during the year for 1,000 square yards was as

follows:

Hand patrol.	<b>\$</b> 0. 132
Machine sweeping	. 149
Alley cleaning.	. 331
Squeegeeing. Flushing	. 115
Flushing	. 194
ricentring	. 194

Removal of city refuse.—The following table shows the amount of city refuse removed under contract during the year:

Garbagetons.	<b>50, 806</b>
Ashescubic yards	148, 190
Miscellaneous refuse	146, 152
Night soil harmale	19 040
Dead animals.	20, 570

The contract prices for this service during the year were as follows, per annum:

Garbage Ashes	73 150
Miscellaneous refuse	17.000
Dead animals.	2, 855

The unit costs are as follows:

Garbageper ton.	\$1, 34
Ashesper cubic yard	. 49
Miscellaneous refusedo	. 11
Night soil per harrel	1. 16
Dead animals per animal.	. 14

New contracts were entered into for this service, commencing July 1, 1915, at the following prices per annum:

•	 •	
Garbage Miscellaneous refuse	 	 \$69, 840
Miscellaneous refuse	 	 . 28, 400
Ashes	 	 69.000
Dead animals	 	 . 2,988

The District appropriation act for the fiscal year 1915 included an item of \$7,500 for the purpose of investigating and reporting upon the collection and disposal of garbage and other city wastes originating in the District of Columbia, including the preparation of plans and specifications for the construction of disposal plants, and the

employment of an expert to investigate this problem. A contract was entered into with Irwin S. Osborn, of Columbus, Ohio, to make such investigation and report. This report has been completed and will be ready for submission to Congress at its present session.

## BUILDING OPERATIONS.

The estimated value of building construction, including repairs, during the year, but not including buildings under construction by the United States Government, was \$8,599,932. This shows a decrease in building construction under the preceding year of \$944,370.

The number of permits issued for buildings, building repairs, awnings, signs, engines, motors, elevators, etc., was 5,571, a decrease under

the preceding year of 73.

The number of dwelling houses constructed was 1,155, a decrease of six under the preceding year; the number of business buildings erected was 289, a decrease of 12 under the preceding year. The number of apartment houses erected was 42, an increase of 8 over the preceding year. The number of buildings repaired was 3,368, a decrease of 651 under the preceding year. The total number of new buildings erected during the year was 1,486, a decrease of 10 under the preceding year.

The distribution of the cost of these improvements, including

repairs to existing buildings, is as follows

	Buildings.	Repairs, etc.
Northeast Southeast Northwest Southwest County	\$347, 427 192, 150 1, 778, 931 314, 467 4, 315, 896	\$114, 152 93, 278 1, 094, 376 51, 013 273, 367
Buildings	6, 948, 871 1, 626, 186	1, 626, 186
Total	1 8, 575, 067	

<sup>1</sup> Does not include awnings, fire escapes, or signs, cost of which is estimated.

It is estimated that there are 62,099 brick buildings and 26,337 frame buildings in the District of Columbia, of which 1,243 brick buildings were erected and 158 torn down, leaving a net increase during the year of 1,095. Of frame buildings 306 were erected and 58 torn down, leaving a net increase during the year of 248.

58 torn down, leaving a net increase during the year of 248.

It will be noted that building construction has fallen off materially during the past year, the only increase being in the number of apartment houses erected. The estimated value of building construction during the year was the smallest since the year 1902. It is nearly \$1,000,000 less than the previous year. This condition, however, is not peculiar to Washington, as a similar condition has existed in all of the principal cities of the United States.

Permits for buildings are issued upon the payment of a fee, which is intended to cover the cost of the operation of the building inspector's office. The fees collected during the year amounted to \$26,635.05, an increase of \$1,629.44 over the preceding year. The expenses of the office were \$34,270.87. The net excess of expenses over receipts

during the year was \$7,635.82, as compared with a net excess of ex-

penses over receipts during the last fiscal year of \$9,588.41.

An amendment to the building regulations, which took effect April 1, 1914, required fees to be paid for the inspection of elevators. theaters, and other places of public amusement and buildings falling within the scope of the fire-escape law. It was estimated that the fees from this source would add about \$5,000 to the receipts. estimate proved to be correct, as the receipts from this source were \$4.759.75, and there is due on this account \$575.

The more important changes made in the building regulations during the year were those making the open fence the standard party fence in lieu of the close-board fence and the regulation providing

for the construction of buildings with walls of hollow tile.

#### FIRE ESCAPES.

The building office is continuing its inspections and taking such other action necessary to enforce compliance with the law requiring the erection of fire-escapes and fire-prevention apparatus in buildings coming within the scope of the law. The number of notices served during the year was 134 and the number of fire escapes erected 102.

#### ELEVATORS.

The elevators in the District of Columbia are inspected by two men

under the direction of the inspector of buildings.

The number of passenger elevators installed during the year was 31 and the number of freight elevators 34. The number of elevators examined was 2,992, exclusive of 142 elevators inspected for the United States Government. By reason of the increase in the installation of elevators in new buildings, the maximum capacity of inspection by these two men was reached, and it was necessary during the year to relieve them of the quarterly inspection of elevators in private residences, the inspection of these elevators being now made annually. All other elevators are required to be inspected quarterly.

Under a requirement of the building regulations, elevator operators are required to pass an examination and be licensed. The number examined during the year was 341, of whom 313 passed and were licensed and 28 failed. A fee of 50 cents is charged for each applicant

licensed, and the revenue from this source was \$156.50.

## INSPECTION OF PRIVATE BUILDINGS.

All private building construction in the District of Columbia is inspected under the direction of the inspector of buildings. total of such inspections during the year was 63,176, a decrease under the preceding year of 2,502. This is an average of 22.1 inspections daily for each field inspector, as compared to an average of 23.4 during the preceding year.

## INSPECTION OF STEAM BOILERS.

The number of steam boilers inspected by the inspector of steam boilers during the year was 488. The compensation of this official is received from fees paid by the owners of the boilers. The total

amount of fees reported by him during the year was \$2,195 and the expenses of inspection \$305, leaving a net compensation to him of \$1,890.

## EXAMINATION OF STEAM ENGINEERS.

The board of examiners of steam engineers held 50 meetings and examined 117 applicants, of whom 35 were found competent and 82 incompetent.

CONSTRUCTION OF MUNICIPAL BUILDINGS.

During the year 12 buildings were under construction as follows:

Building.	· Location.	Estimated cost.
New Central High School	Between Eleventh and Thirteenth Streets, Florida Avenue and Clifton Street NW.	\$1,030,450.0
New Colored High School		550,000.0
Farmers' Produce Market	B Street, between Tenth and Twelfth Streets NW.	15,515.0
Repair shop for water department	Bryant Street, west of Second Street NW	18, 100.0
Reconstruction Western High School	Thirty-fifth and R Streets NW	123, 553, 3
Park View School	Warder Street, between Newton and Otis Streets NW.	116,844.9
Superintendent's residence, Tuberculosis Hospital.	Thirteenth and Upshur Streets NW	5,601.3
Reconstruction of cells at police station No. 3.	K Street, between Twentieth and Twenty-first Streets NW.	4,378.0
Swimming pool, Georgetown play- ground.	Thirty-third Street and Volta Place NW	4,043.0
Swimming pool for Howard playground.	Fifth and W Streets NW	3,278.6
Swimming pool for Rosedale play- ground.	Eighteenth and Gales Streets NE	2,528.6
Animal hospital	Zoological Park	6,000.0

The plans for all buildings appropriated for during the fiscal year 1915 were completed before the end of that year, and all buildings except truck house No. 1, and engine house for the Tenleytown section were under construction. These are expected to be under construction before the beginning of the calendar year 1916.

tion before the beginning of the calendar year 1916.

Plans for the addition to the Powell School, and for remodeling the public convenience station at Seventh Street and Pennsylvania Avenue, have also been completed, and work is in progress on plans for the two other buildings appropriated for in the 1916 appropriation act, namely, a public convenience station at Fifteenth and H Streets NE. and the Fish Market at Twelfth and Water Streets SW.

The preliminary plans for the Municipal Hospital have been completed, and the preparation of working drawings is now in progress.

#### REPAIRS TO MUNICIPAL BUILDINGS.

All municipal buildings are kept in repair by the superintendent

of repairs, under the direction of the municipal architect.

The estimated value of school buildings, school grounds, and mechanical plants in connection therewith is \$15,000,000. Other District buildings kept in repair by this office are estimated to have a value of \$1,000,000, making the total value of all such buildings \$16,000,000. Funds appropriated for the repair of these buildings have been less than 1 per cent of such estimated value. The appropriation made for repairs to school buildings for the fiscal year was \$115,000, for repairs to engine and truck houses \$12,000, for repairs to police stations \$6,000, and for repairs to the police-court building \$1,000.

#### CONDEMNATION OF INSANITARY BUILDINGS.

The board for the condemnation of insanitary buildings examined 244 buildings during the year, of which 61 were demolished, 116 repaired, and 67 cases are still pending. Of those demolished 42 were on streets and 19 in alleys. Of those repaired 42 were on streets and 28 in alleys, and of the pending cases 46 are on streets and 21 in alleys.

The total number of buildings examined by the board since its creation by act of Congress approved May 1, 1906, to the end of the fiscal year was 6,389, of which 1,976 were demolished, 1,438 repaired, and 67 cases pending. Of those demolished 1,328 were on streets and 648 in alleys; of those repaired 980 were on streets and 458 in

allevs.

The estimated number of tenants required to secure other quarters in streets and alleys through action of the board throughout the year was 197, and the total since the creation of the board 5,771. It has not been necessary for the board to demolish any buildings during the year through failure of the owner to take proper action.

Under an act of Congress approved September 25, 1914, entitled "An act to provide in the interest of public health, comfort, morals, and safety for the discontinuance of the use as dwellings of buildings situated in the alleys of the District of Columbia," a house-to-house inspection was made of the occupants and the character of such buildings. This investigation disclosed the following results:

Section of city.	Adults.	Children.	Brick dwellings.	Frame dwellings.	Vacant.
Southwest. Southeast. Northeast. Northwest.	1, 118 664 562 3, 354	490 429 342 1,493	408 268 257 . 1,398	162 52 20 148	126 82 60 438
Total	5, 698	2,754	2, 331	382	706

#### PLUMBING AND PLUMBING INSPECTION.

During the year the plumbing office made 37,478 inspections, which is a slight increase over those made in the preceding year. It is estimated that the total cost of new plumbing work installed in private residences during the year was \$572,260 and for repairs and remodeling of old plumbing \$228,980. The average number of inspections per day per man was 16. Thirty-three cases of violations of the plumbing regulations were prosecuted in the police court.

Under the compulsory drainage act 28 cases were handled, and it was not necessary for the plumbing office to install plumbing in private premises under the law which provides that upon failure of the owner to do such work it shall be done by the District and

assessed against the property.

#### PUBLIC CONVENIENCE STATIONS.

The three public convenience stations—at Seventh Street and Pennsylvania Avenue NW., Thirteenth Street and Pennsylvania Avenue NW., and Ninth and K Streets NW.—were operated during the year

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from 6 a. m. until midnight. During the year the patrons of these stations numbered 2,692,203 persons. The receipts from pay com-

partments aggregated \$3,117.39.

An appropriation of \$5,000 was made in the District appropriation act for the fiscal year 1916 for the construction of a new station at Fifteenth and H Streets NE., and plans are being prepared for this work.

#### PLUMBING BOARD.

During the year the plumbing board held 35 sessions for examination of candidates for license as master plumbers and gas fitters. The total number of applicants examined was 46. Of this number 29 were original candidates, of whom 8 passed and 21 failed. Of those previously examined, 5 passed and 12 failed.

## STREET LIGHTING.

There are 18,201 street lamps of all kinds in the District of Columbia, as follows:

Mantle gas	10, 195
Electric arc	941
Electric incandescent.	6. 592
Street-designation lamps	

18. 201

This was a net increase during the year of 866 lamps. Improved incandescent lighting was extended during the year on approximately 10 miles of streets, replacing gas and electric arc lamps. This involved

the erection of 850 100-candlepower lamps.

The appropriation act for the fiscal year 1912 required that all inclosed arc lamps in service on July 1, 1911, be replaced with either 4-ampere magnetite arc lamps or with some other form of improved lighting to be selected by the commissioners, the changes to be made at the rate of not less than 400 lamps per annum and to be completed not later than April 1, 1914. In compliance with this act there was replaced during the year ending April 1, 1915, 335 such lamps. The total replaced under this authority has been 1,538.

Ornamental luminous arc lamps (6.6 ampere magnetite) similar to those erected on Pennsylvania Avenue, between First and Fifteenth Streets NW., last year, were installed on F and G Streets, from Seventh to Fifteenth Streets; on D Street, between Seventh and Tenth Streets; and on Eighth, Ninth, Tenth, Eleventh, Twelfth, and Thirteenth Streets, between Pennsylvania Avenue and G Street NW.

## FIRE-ALARM, TELEGRAPH, AND TELEPHONE SERVICE.

Seven miles of underground cable were installed during the year, the amount in service on June 30, 1915, being about 137 miles. The aerial cable in service on June 30, 1915, was 5.826 miles, as compared with 6.21 miles during the preceding year.

Twenty new fire-alarm boxes were placed in service during the year,

making the total on June 30, 1915, 581.

The total number of fire alarms received and transmitted during the year was 1,451, of which 96 were false.

The total number of poles connected with steam and street railroads, telephone, telegraph, electric-light, and District of Columbia telegraph and telephone service in the District of Columbia on June 30, 1915, was 17,547, of which 16,701 are line poles and 846 guy poles. The fees collected for the inspection of private electric wiring in

buildings amounted to \$5.860.10.

#### PERMITS.

The permits issued by the permit clerk of the engineer department other than those for buildings amounted to 15,227; of this number 10,133 were covered by fees and for 5,094 no fees were paid.

## AUTOMOBILE BOARD.

The automobile board examined 4,423 applicants for permits to operate motor vehicles in the District of Columbia, and recommended permits be issued them, as follows:

Three thousand eight hundred and ninety for gasoline vehicles, 155 electric, 8 steam, and 339 motor cycles. Licenses were refused to 31

applicants.

The revenue received from this source was \$13,530, of which resi-

dents of the District paid \$8,642, and nonresidents \$4,888.

One hundred and seventy-two licenses were issued to operate vehicles of the United States and the District of Columbia for use in official business without fee.

Five thousand three hundred and one enamel metal identification tags were also issued, as follows: 4,503 gasoline, passenger; 451 gasoline, truck; 117 electric, passenger; 16 electric trucks; 5 steam-driven vehicles; 621 motor vehicles; 76 vehicles of the United States and the District of Columbia. In addition there were 2,708 tags issued to nonresidents. The revenue received from this source was \$15,866, of which the residents of the District of Columbia paid \$10,450 and nonresidents \$5,416.

#### ROCK CREEK PARK.

The jurisdiction and control over Rock Creek Park is placed by law under the Commissioners of the District of Columbia and the

Chief of Engineers, United States Army, acting jointly.

The amount appropriated for the care and maintenance of the park during the year was \$18,000, and in addition there was an appropriation of \$2,000 for the removal of dead and down timber. The sum of \$11,211.95 was spent in the general care and maintenance of the park, including repairs to roads and paths, mowing, etc., of

which sum \$1,537.43 was spent for oiling roads.

The principal improvement during the year was the macadamizing of the road connecting Ridge Road with Beach Drive, a distance of about 2,000 feet, at a cost of \$403.40. The regrading, widening, and macadamizing of Ross Road for a width of 18 feet was started and a large part of the work completed. This road has been opened to automobiles, thereby affording a new route, which will serve to distribute automobile traffic over a greater territory and lessen the danger of its congestion. The amount spent on this road was **\$**3,7**8**2.65.

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Under the appropriation for the removal of dead and down timber 150 cords of firewood of good quality was obtained and was sold to public schools for fuel at the rate of \$5.50 per cord, delivered. In addition a large amount of fence rails and posts were produced from dead chestnut trees.

Chestnut blight attacked the chestnut trees and threatened their total destruction. Steps have been taken to check the spread of this blight by cutting as many of the affected trees as the appro-

priations will permit during the fall and winter.

Several fires occurred in the park during the season, and steps have been taken to prevent such fires in the future as far as possible.

An increasing use is being made of the park for picnic parties as the present facilities for reaching it are becoming better known, but it is realized that certain extensions should be made to existing street car lines so as to make the interior of the park more accessible to those people who have neither carriages or automobiles. Several plans to accomplish this object have been under consideration and it is hoped that a solution will be found that will not detract too much from the natural beauties of the park.

#### ANACOSTIA RIVER AND FLATS.

The total expenditures on the project for the reclamation and improvement of the Anacostia River and Flats from the Anacostia Bridge to the District line to June 30, 1915, as reported by the Chief of Engineers, under whom this work is being prosecuted, amount to \$243,367.72, and the balance available and unexpended on July 1, 1915, was \$256,632.28. At the close of the fiscal year 1915 the project was about 10 per cent completed, and resulted in the partial improvement of the channel between the Anacostia and Pennsylvania Avenue Bridges, and in the partial reclamation of about 55 acres of land.

The commissioners have included in their estimates for the fiscal year 1917, an item of \$200,000, which amount includes \$100,000 which was authorized to be expended during the fiscal year 1916, but for which no funds were appropriated, and an additional \$100,000 which is estimated to be necessary to carry on this work during the

fiscal year 1917.

## HARBOR FRONT.

The total amount received from the rental of wharves and river frontage placed by law under the direction of the commissioners during the year was \$21,445.39, divided as follows:

Potomac River front	\$19, 121. 64
Anacostia River front	956. 25
James Creek Canal	1, 367, 50

21, 445.39

The actual water frontage in the District of Columbia devoted to commerce, with the exception of canals, is about 2 miles. The total available water frontage is about 18 miles, of which about 8 miles is set aside for parks and purposes of the United States. The largest amount of wharf property under the control of the commissioners is that along the Washington Channel. The total frontage along this channel is 9,275 linear feet, of which 4,675 linear feet, between the

grounds of the War College and the south curb line of N Street, is under the control of the United States, and of the remaining 4,600 linear feet 4,241 feet is under the control of the commissioners, and 359 feet, between Thirteenth and Fourteenth Streets, is under the jurisdiction of the United States. Along this frontage are located the harbor police station, dock of the harbor boat, house and dock of the fire boat, the District morgue, a District property yard, the municipal fish wharf and market, and the site of the proposed central heat and power plant for Federal buildings. The lower portion of the frontage is used for river-excursion traffic and steamboat traffic be-tween Washington, Baltimore, Norfolk, and points along the lower river, and the upper portion is used for wood, lumber yards, etc. The lease for the wharves on the Potomac River front are generally for a period of five years, most of them expiring March 15, 1918. The basis of rental is a net return of 4 per cent on the estimated value of the wharf property, with the requirement that the lessee shall make all improvements and repairs. The leases along the Anacostia River and James Creek Canal are generally for lesser periods.

The property along the Anacostia River is largely undeveloped, owing to the uncertainty of ownership of abutting land and riparian rights, and steps are being taken by legal proceedings under the direc-

tion of the Attorney General to settle the question of title.

The wharves along the Georgetown Channel are privately owned, except the foot of streets. Two leases have been entered into with private parties, one for the foot of Thirty-third Street and one for the foot of G Street.

The portion of James Creek Canal from N Street to P Street, a distance of 1,000 feet, is under lease for commercial purposes. From P Street to the outlet of the canal, on the Anacostia River, a distance of about 3,000 feet, the canal extends along the grounds of the War College and Engineer School.

#### IMPROVEMENT OF THE HARBOR FRONT.

It will soon become necessary to rebuild the wharf structures along the Washington Channel, and when this is done it should be along some definite plan. The District appropriation act for the fiscal year 1916 contained an appropriation of \$50,000 for reconstructing the wharves operated in connection with the municipal fish wharf and market, and these are in course of construction. The same act contained an appropriation of \$125,000 for the construction of market buildings at the municipal fish wharf and market, with a cost limit of \$185,000, and plans for these buildings are now being prepared by the municipal architect. The municipal fish wharf and market is under the control of the superintendent of weights, measures, and markets.

#### SEWERS.

The length of main and pipe sewers constructed during the year was 20.54 miles. The total length of main and pipe sewers in the District of Columbia on June 30, 1915, was 682.11 miles, of which 137.36 miles are main sewers and 544.75 miles pipe sewers. The total cost of the sewerage system to June 30, 1915, was \$13,034,101.62. The total cost of the sewage-disposal system to June 30, 1915, was

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\$4,624,186.31, making the total cost of the complete system to June

30, 1915, \$17,658,287.93.

Twelve billion gallons of untreated sewage were discharged into the Potomac River by the District of Columbia during the past year. With the increasing population and the growing demand for greater refinement in the disposal of the sanitary waste of cities it is believed consideration will have to be given to the preparation of plans for the removal and utilization of the hundreds of tons of organic and other matter which is now carried by the river waters under the existing method of sewage disposal. The present condition of the river, however, is believed to be exceptionally good. The outfall of the sewage-disposal system, about opposite Alexandria, where substantially the entire sewage of the District of Columbia is discharged, was under observation during the year, and examinations of the river bottom showed no evidence of sludge deposits for a distance of 60 miles below the sewage outlets, while the shores and beaches were free from any objectionable condition as to odor, deposits, or otherwise, and the surface of the river was substantially free from oily, sleek, or other objectionable floating matter.

The sanitary survey of the river undertaken by the United States Public Health Service has been completed, and the report thereon will soon be published. Great importance is attached to the results of this survey, not only in throwing new light on the question of the self-purification of river waters, but particularly as an authoritative analysis of the local conditions in the Potomac River as dealing with

the problem of sewage purification.

Metropolitan sewerage district.—In connection with the problem of providing for the removal of sewage now discharging from adjacent Maryland towns into the small streams entering the District of Columbia, it has been found that the pollution of these streams is steadily increasing. The subject has been the matter of investigation of the Maryland State Department of Health and the Bureau of Sanitary Engineering, and a comprehensive report advising the creation of a sanitary district and providing for measures of relief in cooperation with the District of Columbia was submitted to the Maryland State Legislature at its session in 1914, but no legislative action was taken on this report, however, and unless such action is taken by the State of Maryland in the near future it will be necessary that action be taken by the District of Columbia toward securing the abatement of these conditions. During the past year several of these towns have begun the installation of sewerage systems discharging into these streams, and this will doubtless augment the present pollution. The only practical solution of this problem is believed to be the formation of a metropolitan district under the control of a State and national board, with the power to construct the necessary valley interceptors for the removal of the sewage, and that these interceptors be arranged so as to discharge at the State line into the interceptors of the sewage, disposal system of the District of Columbia, the District to be reimbursed for the cost of pumping and handling the sewage from the Maryland towns and villages by a tax levied upon the Maryland communities to be collected by the States, which tax would also defray the cost of the construction and maintenance of the State system.

Sewage-disposal system.—The sewage-disposal system was in continuous operation during the year, handling the sewage of practically

the entire District. At the main pumping station, at the foot of New Jersey Avenue, 21,854,000,000 gallons of sewage and 296,000,000 gallons of storm water were pumped. In this service 10,229,000 pounds of coal were used. Substations at Poplar Point and Woodridge were placed in service during the year.

Sewer construction.—The following table shows the length and cost

of sewers constructed during the year:

Section.	Length.	Cost.
1. County west of Rock Creek 2. County east of Rock Creek 3. County west of Anacostia River 4. County east of Anacostia River 5. Washington City	Feet. 32,039.68 26,315.54 22,857.18 6,764.95 15,348.81	\$70, 845. 26 64, 971. 07 35, 176. 74 11, 962. 54 52, 097. 80

#### PARKS.

No parks were acquired by the commissioners during the year, but condemnation proceedings were instituted for the acquisition of certain small parks under the appropriation of \$25,000 made for this purpose.

An additional appropriation of \$25,000 will be included in the estimates for the fiscal year 1917, these parks to be located at the street intersections not only outside of the old city limits, as has been

authorized heretofore, but also within those limits.

Estimates have also been submitted for the acquisition for park purposes of the tract of land in the northeast section of the city known as the Patterson tract, lying north of Florida Avenue and east of New York Avenue, and also for the acquisition of the tract of land in the northwest section known as the Dean tract, located at Connecticut Avenue and Florida Avenue.

#### WATER MAINS.

Sixty thousand and twenty-three feet, or 11.4 miles, of water mains of all sizes were laid during the year, making the total length of water mains in service at the end of the year 3,172,453 feet, or 600.8 miles. During the year 7,973 feet of water mains of various sizes were abandoned.

Two hundred and sixty-nine fire hydrants, 9 public hydrants, 2 sanitary fountains, and 1 horse fountain were erected during the year, and 184 fire hydrants, 3 public hydrants, and 1 horse fountain were abandoned, making the total number in service at the end of the year as follows: Fire hydrants, 3,374; public hydrants, 217; sanitary fountains, 13; horse fountains, 152; deep wells, 44; shallow wells, 9. The most important work of the year was the laying of 1,936 feet of 36-inch water main in Sixteenth Street and Meridian Street NW. to the Brightwood Reservoir.

## WATER CONSUMPTION AND WASTE.

By reason of the installation of meters and the operation of the pitometer service a still further decrease in the consumption of water was accomplished during the year. The present mean daily rate of consumption is now about 52,512,000 gallons, and the per capita rate

144 gallons. Measures to reduce the consumption of water were started in 1905, when the mean daily rate had reached 69,000,000 gallons and the per capita about 227 gallons. The decrease in per capita rate since 1905 is 33 per cent. The safe mean rate of flow in the only conduit supplying the city with water is about 65,000,000 gallons daily. It is hoped that the per capita rate can be finally reduced to 130 gallons, and with the population increasing at about the same rate as in the past, the mean daily consumption would then reach the mean safe daily capacity of the conduit in the year 1930, when the population of the District, it is estimated will, be about 500,000. By means of the pitometer service for the prevention of water waste a total underground leakage was found and stopped amounting to 1,828,820 gallons per day. The total expenses of this service were \$33,433.62.

The total pumpage of water during the year was 8,873,566,810

gallons.

Attention is invited to the very large use of water in Federal buildings for condensing and cooling purposes. As there is no direct charge against Federal departments for water delivered to them, the cost of the water is seldom taken into consideration when additions are made to the mechanical equipment in such buildings, and, with an unlimited supply of water available, without cost, there is no incentive to conserve the supply by the use of cooling devices. One of the public buildings has a present consumption of about 3,000,000 gallons per day, and of this but 700,000 gallons is used for domestic purposes by the employees. If the consumption of water at this building is maintained at this rate, its annual water bill, based on the rate charged private consumers, would be in excess of \$46,000. As we are steadily approaching the capacity of the present Washington Aqueduct, it is important that steps be taken to prevent such use of water as involves an economic waste.

#### WATER REVENUES AND EXPENDITURES.

The water revenues from all sources during the year, including a balance of \$33,444.53 brought forward from previous year, amounted to \$763,020.14. The expenditures for the year amounted to \$619,868.85. The outstanding net liabilities on June 30, 1915, amounted to \$48,670.90, leaving a working balance to the department on that date of \$98,923.40. Of the total cost of work done during the year 42 per cent was for new work in extension of plant, 41 per cent for operation, 13 per cent for general repairs, and 4 per cent for replacements.

Water is furnished free to churches, hospitals, orphan asylums, schools, and charitable institutions under authority of law to the extent of 19,318,820 cubic feet. This is based on a per capita allowance of from 60 to 100 gallons per day, depending on the character of the institutions. All water in excess of that allowed is charged for at meter rates. This excess of allowance amounted to 7,397,680 cubic

feet during the year.

## WATER METERS.

During the year there were installed 6,448 meters, making the total number in service June 30, 1915, 48,411. The total number of water services is 68,365, and of these 30 per cent remain yet unmetered. It is estimated that the metering of the city will be completed in the

summer of 1918. The average cost of installing meters by the District of Columbia during the year was \$10.53, including the cost of the meter, which was \$4.85. The rate charged for water on meter services during the year was 4 cents per 100 cubic feet for all used in excess of 7,500 cubic feet. The minimum charge for 7,500 cubic feet is \$4.50 per annum. The average annual payment where meters were installed by the District of Columbia was \$5.51. Water-rent bills are delivered to the householder annually at the minimum rate, which allows the use of 7,500 cubic feet, or 56,100 gallons, and if on actual measurement water is found to be used in excess of this amount bills are rendered for such excess at the rate of 4 cents per 100 cubic feet.

On the water services which are not metered water for domestic purposes is charged according to the number of stories and frontage. For premises of two stories with a front width of 16 feet or less the minimum rate is \$5 per annum; for each additional front foot or fraction thereof 31 cents is charged. For each additional story one-third of the charges as computed above is added. For business premises not metered rates vary from \$1 to \$25 per annum. Where the rate is \$25 or more a meter is required to be installed at the expense

of the consumer.

## TRANSFER OF WASHINGTON AQUEDUCT.

Under present law the control over the water supply and distribution systems of the District of Columbia is divided between the Chief of Engineers, United States Army, acting under the direction of the Secretary of War, and the Commissioners of the District of Columbia. The Chief of Engineers has jurisdiction over the water-supply system, including the dam at Great Falls, the aqueduct bringing the water to the city, the reservoirs along the route, and the filtration plant, as well as a portion of the water mains laid in the streets of the city. He also has jurisdiction over the highway known as the Conduit Road, under which the aqueduct is laid. The Commissioners of the District of Columbia have control over the distribution of the water after it leaves the filtration plant. This distribution system consists of the high-service reservoirs, District pumping station, a greater part of the trunk water mains, and all distributing water mains. extensions to the distribution system are made by the commissioners. The subject of placing the complete water system under one control has been a matter of discussion by previous boards of commissioners, and legislation has been drafted in previous years providing that this control should be placed in one body, namely, the Commissioners of the District of Columbia. The present board of commissioners concurs in the views expressed by their predecessors in office, and in their estimates to Congress for the fiscal year 1917 they have included legislation with the object of placing the whole water system under them, as they believe that considerable economy of administration will result if the proposed change is made. The expenditures of the commissioners in water distribution during the year amounted to \$619,868.85, while the appropriations for the year on account of the water-supply system amounted to \$67,800.

Very respectfully,

OLIVER P. NEWMAN,
LOUIS BROWNLOW,
CHARLES W. KUTZ,
Commissioners of the District of Columbia.

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## ORGANIZATION OF THE ENGINEER DEPARTMENT, D. C.

Maj. CHARLES W. KUTZ, Corps of Engineers, United States Army,

Engineer Commissioner, D. C.

Capt. J. L. SCHLEY, Corps of Engineers, United States Army,
Capt. W. D. A. ANDERSON, Corps of Engineers, United States Army,
Capt. R. G. POWELL, Corps of Engineers, United States Army,

#### UNDER THE IMMEDIATE SUPERVISION OF THE ENGINEER COMMISSIONER.

RECORD DIVISION—
D. E. GARGES, Chief Clerk.

WHAPF COMMITTEE—
DANIEL E. GARGES, Chief Clerk, Engineer Department.
D. E. MCCOMB, Engineer of Bridges.
RUSSELL DEAN, Harbor Master.

ROCK CREEK PARK—
L. R. GRABILL, Assistant Engineer in Charge.

DISTRICT BUILDING—
Capt. J. L. SCHLEY,
Capt. R. G. POWELL,
Superintendents.

#### UNDER THE IMMEDIATE SUPERVISION OF CAPT, ANDERSON,

HIGHWAYS (STERETS, ROADS, BRIDGES, ETC.)—
C. B. HUNT, Engineer of Highways.
Sidewalks and alleys—
H. N. Moss, Superintendent of Streets.
Construction and maintenance of suburban roads—
L. R. Grabill, Superintendent of Suburban Roads.
Construction and care of bridges—
D. E. McComb, Engineer of Bridges.
STREET AND ALER CLEANING, COLLECTION OF GARBAGE, ETC.—
J. W. PATTON, Superintendent of Street Cleaning.
ASPHALTS AND CEMENTS—
J. O. HARGROWE, Inspector of Asphalts and Cements.
SURVEYOR'S OFFICE (including street extensions)—
M. C. HAREN, Surveyor.
TREES AND PARKINGS—
TRUEMAN LANHAM, Superintendent of Trees and Parkings.
PERMITS—
H. M. WOODWARD, Permit Clerk.
AUTOMOBILE BOARD—
H. M. WOODWARD, Secretary.

#### UNDER THE IMMEDIATE SUPERVISION OF CAPT. SCHLEY.

ELECTRICAL DEPARTMENT—
W. C. ALLEN, Electrical Engineer.
ENGINEER DEPARTMENT STABLES—
J. W. BEALE, Superintendent.

#### UNDER THE IMMEDIATE SUPERVISION OF CAPT. POWELL.

WATER DEPARTMENT—
J. S. GARLAND, Superintendent.
Water rates—
G. W. WALLACE, Water Registrar and Chief Clerk.
Sewer Construction and Maintenance—
Asa E. Phillips, Superintendent of Sewers.
MUNICIPAL Architect—
SNOWDEN ASHIVARD.
Repairs to municipal buildings—
Henry Storey, Superintendent of Repairs.
Building Inspection—
Morris Hacker, Inspector of Buildings.
Plumbing plans and inspection—
A. R. McGonegal, Inspector of Plumbing.
Plumbing board—
P. C. Scharfer,
J. S. O'Hagan,
R. A. O'Brien,
Board of examiners of steam engineers—
E. F. Vermillion.
H. Boesch.
Jas. T. Fink.
Board for Condemnation of Insanitary Buildings—

BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS— Capt. R. G. POWELL, A seistant to Engineer Commissioner, Dr. WILLIAM C. WOODWARD, Health Officer. MORRIS HACKER, Inspector of Buildings.

XXVI

# REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT OF THE DISTRICT OF COLUMBIA.

#### REPORT OF THE ENGINEER OF HIGHWAYS.

WASHINGTON, D. C., August 12, 1915.

Sir: I have the honor to submit the following report of the operations of the office

Sir: I have the honor to submit the following report of the operations of the office of the engineer of highways for the fiscal year ended June 30, 1915:

The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the surface division aggregated \$1,513,447, of which \$220,000 was for paving sidewalks and alleys in all parts of the District; \$579,000 for paving new roadways and repairing old roadway pavements; \$227,500 for construction and repair of suburban roads; \$270,000 for construction and repair of bridges and viaducts; \$15,000 for grading streets and avenues; \$10,000 for sidewalks and curbs around Government reservations, buildings, and parks; \$50,000 for municipal fish warves; and \$141,947 was spent in repairing pavements disturbed by other branches of the District government and by various corporations and others. of the District government and by various corporations and others.

Summary of work under appropriation for improvements and repairs for year ended June 30, 1915.

Character of work.	Streets and avenues.	Suburban streets and roads.		Total.
Sheet asphalt pavement	3,318.57 7,421.47 12,589.00 13,231.27	1, 276, 01 4, 451, 24 22, 132, 59 35, 927, 00 6, 282, 79 8, 141, 00 1, 285, 30 16, 367, 34 3, 725, 37	46, 072. 00 7, 525. 60 7, 217. 54	35, 927. 00 6, 282. 79 8, 141. 00 46, 072. 00 13, 874. 30 37, 124. 71 10, 942. 91 3, 725. 37
Sidewalks and curbs around Government reservations, square yards.  Alley pavements laid: Asphalt block, assessment and permit work, square yards.  Vitrified block, assessment and permit work.				3, 217. 11 14, 756. 00 82, 106. 90

In constructing roadway pavements a reduced area of bituminous concrete was laid, as the total area on the streets was felt to be approximately a discreet maximum. Its cost approximates sheet asphalt where a concrete base is supplied, and only time Its cost approximates sheet asphalt where a concrete base is supplied, and only time can develop the relative value of this pavement in comparison with the known high value and long endurance of sheet asphalt. When this pavement can, with discretion, be laid on an existing macadam roadway, its economies are such as to indicate its continued use. Concrete roadway construction, where traffic conditions are not too severe, has gained an increased confidence due to its economy and the excellent behavior of the moderate amount laid in the past. The destruction by fire of the local asphalt block plant prevented the laying of any new street pavements of this type, as the use of blocks manufactured at out-of-town plants was considered less advisable than the substitution of sheet embelt for the proceed block pavement, the costs being than the substitution of sheet asphalt for the proposed block pavement, the costs being

almost the same. Sheet asphalt continues the primary pavement in our practice for urban work, as the records of the year's operations disclose. Alley pavements of a modern type were laid to the extent of a total of 29,717 square yards of vitrified block and 13,256 square yards of asphalt block, both paved on a gravel base.

The use of broken stone from the Occoquan workhouse, as a component of concrete base in street work, was arranged for in our contracts and a small amount was supplied and used, the contractor paying for the same an agreed price of 90 cents per cubic yard at the wharf in Washington. This arrangement will be continued in future specifications as a proper disposition of the product of the prisoners' labor.

The construction of the Q Street Bridge over Rock Creek was in active progress

throughout the year and the structure is nearing completion.

The construction of the Pennsylvania Avenue Bridge over Rock Creek was placed under contract and substantial progress made thereon. These projects are fully reported on by the engineer of bridges.

The construction of the viaduct to eliminate the grade crossing at Benning has

not been commenced, due to the necessity of first concluding proceedings in con-

demnation to acquire the land on which it is to be built.

Cement sidewalks were laid to the exclusion of other types during the year, their reasonable cost, together with their excellence, naturally securing this result.

#### MUNICIPAL ASPHALT PLANT.

The municipal asphalt plant was operated with continued success during the year, material being manufactured and sent to the streets on 240 working days—a very full quota, based on our past experience both with municipal and contractors' operations. The total output during the year was 174,300 cubic feet, of which all but 7,008 cubic

feet of straight sand surface mixture was old material mixture.

The average daily output during the days the plant was operated was 725 cubic feet, which corresponds fairly with the experience of past years. The quality of the output is, so far as our present experience allows us to judge, entirely satisfactory and the economy of the use of old material is marked. The old material as removed from the streets is hauled to the asphalt plant, and during the past year the crusher has been so operated that the material was largely crushed as received, instead of being allowed to accumulate before crushing operations were begun. This has resulted in a marked reduction in the cost of crushing, which was 74 cents per cubic yard, including all overhead charges, as compared with \$1.04, the analogous figure for the preceding year.

The crushed material is placed in the heating drum, with an admixture of a formulated amount of sand, stone screenings, and limestone dust, and heated to a prescribed temperature and then transferred to a mixing drum. Therein it is mixed with a charge of fresh asphaltic cement and thence transferred to the carts and taken to the The proportions of the various ingredients are constantly under observation, and slight variations therein are made from time to time, as observation indicates their necessity. This detail is a most important one, due to the fact that the old material, as received from the street, is not a constant product, while the resultant

mixture to be replaced on the street should be approximately such.

The crusher, engine, and asphalt mixing plant have been maintained during the year in a high state of efficiency as machines, and are all at present in excellent operating condition. When the plant was installed its life was, with some misgivings, assumed at five years for determination of the amount to be charged off for obsoles-At the end of over half of that period the office is convinced that this expectation will be at least realized, but does not propose any present reduction in the allowance of 20 per cent for obsolescence, for the reason that no allowance has been made for insurance, nor is it practicable to do so other than by including it, by assumption, in the allowance for obsolescence. There was expended on repairs and upkeep to the crusher plant during the year the sum of \$376.44 and in like items for the asphalt plant proper \$1,167.87, both costs being incorporated, separate from obsolescence, in the unit cost of the output. There was also expended for like items for the equipment used on the street in cutting out and placing the manufactured product the sum of \$133.94, which has been similarly charged up. The following amounts of materials were used in manufacturing the output during the year:

Sand, 1,763.01 cubic yards, cost	\$1.07
Asphaltic coment, 940 88 tong cost	15.50
Limestone dust, 185.78 tons, cost	2, 20
Screenings, 386 cubic yards, cost	1.53

There was used in operating the crusher and mixer the following large items:	
Fuel oil, 24,850 gallons, cost	and \$0. 0345 3. 68 5. 00
The cost of operation, including material and labor, is kept from day the summary of this data for the fiscal year develops the following unit of year's operations:	o day, and sets for the
OPERATION OF CRUSHER.	
Period of operation, 99 working days; output of crusher, 4,790 cubic yard	is.
Labor and fuel (\$2,576.51 plus \$158.40)	\$2, 734, 91
Cost per cubic yard, \$0.571.  Maintenance, renewals, and repairs	·
0 4 2 2 1 2 2 2 0 0 0 0	
Cost per cubic yard, \$0.078.  Overhead costs:	00 OF
Capital invested, \$1,910 at 3½ per cent	96.80 982.00
Cost per cubic yard, \$0.093.	
- · ·	<b>44</b> 8. <b>8</b> 5
Cost of assisted product per cubic sector	
Cost of crushed product, per cubic yard:  Labor and materials	\$0.571
Repairs to plant	. 078
Overhead	
OPERATION OF PLANT.	. 742
	•
Period of operation, 240 days; total output, 174,300 cubic feet.	
At plant:	
Labor (3.9 cents per cubic foot)	<b>\$</b> 6, 808. <b>43</b>
Fuel oil (0.6 cent per cubic foot)	1, 103. 61
Wood	
Binder stone	76. 50
m + 1 (r	0.000.07
Total (5 cents per cubic foot)	8, 662. 27
Haul from plant to street:	
Labor (4 cents per cubic foot)	6, 700. 97
On the sale	
On street:  I show (11.3 cents per cubic feet)	10 755 00
Labor (11.3 cents per cubic foot).  Painting joints (0.2 cent per cubic foot)	372 00
Wood.	127. 25
Total (11.6 cents per cubic foot)	20, 255, 24
Maintenance and repairs:	1 105 05
At plantOn street	1, 167. 87
On Bureet	\$0. 07 and \$0. 0345 3. 68 5. 00 a day to day, and unit costs for the  ic yards.  \$2, 734. 91  376. 44
Total (0.74 cent per cubic foot)	1, 301. 81
Overhead:	
Capital invested, \$6,900, at 3½ per cent	241.50
Obsolescence, 5 years, at 20 per cent	1, 380. 00
Capital invested, \$6,900, at 34 per cent	1, 380. 00

,	
Supervision: Foremen and overseers (3.5 cents per cubic foot)	\$6, 160. 53
Total manufacturing costs per cubic foot:	Cents.
Plant, labor	5. 00
Hot haulStreet work	4.00 11.60
Maintenance of plant and tools.	.74
Sharpening of toolsOverhead—	. 50
Interest and obsolescenceSupervision.	. <b>9</b> 0 3. 50
-	26, 24
The sand used was bought under contract at 44 cents per cubic yard and has the wharf to the plant at a cost of \$1,089.09 for 1,742 cubic yards, or 62.5 cents yard, a total cost of \$1.07 per cubic yard. All other expendable material was at the plant site at the unit costs thereof used herein.  The cost of a cubic foot of old material mixture from the above was as fo	s per cubic delivered
0.66 cubic foot crushed material, at 74.2 cents per cubic yard	
0.23 cubic foot sand, at \$1.07 per cubic yard	0092
0.06 cubic foot screenings, at \$1.53 per cubic vard	
2.1 pounds limestone dust, at \$2.20 per ton	0025
Total, material	0613
Total (cubic foot)	3237
contract figures are comparable is submitted:  Asphalt surface topping mixture (class b):  0.60 cubic foot building sand, at 44 cents per cubic yard, haul 63 cents.  0.60 cubic foot Arundel Bay sand, at \$1.25 per short ton	0366
Material cost	2624
	. 3985
Topping, \$0.40 per cubic foot; contract price (class b), \$0.47 per cubic foo	t.
Asphalt surface topping mixture (class a): 0.60 cubic foot building sand, at 44 cents per cubic yard, haul 63 cents.	<b>e</b> 0 0040
0.60 cubic foot Arundel Bay sand, at \$1.25 per short ton	0366
4.16 pounds limestone dust, at \$2.20 per short ton	0046
9.16 f pounds asphaltic cement, at \$31.60 per short ton	1447
Material cost	2099
Manufacturing and placing cost	2624
Manning 60 4792 now cubic facts hid (along a) 60 52 now cubic fact	. 4723
Topping, \$0.4723 per cubic foot; bid (class a), \$0.52 per cubic foot.	
Asphaltic binder (class b):  1 cubic foot binder stone, at \$1.50 per cubic yard	
· · · · · · · · · · · · · · · · · · ·	
Material cost	
	. 3464
Binder (class b), \$0.346 per cubic foot; contract price (class b), \$0.39 per cu	

Asphaltic binder (class a): Material cost..... .1134 Manufacturing and placing cost.... . 2624 . 3758

Binder (class a), \$0.376 per cubic foot; bid (class a), \$0.41 per cubic foot.

The continued use of old material mixture in minor repairs, which was referred to last year as experimental, has practically passed that stage at this time. Its economy in first coest is manifest and its behavior under critical observation has added confidence

to the belief that this economy is real and not apparent only.

Nothing has been omitted in maintaining the asphalt plant against deterioration and confidence is felt that the past assumptions as to obsolescence will be justified

if, indeed, an error has not been made in underestimating its useful life.

The total cost of minor repairs to sheet asphalt pavements during the year, the same representing the maintenance cost for the year, was \$41,095.95. This cost represented the maintenance of all asphalt streets not under guarantee by contractors—a total yardage of 2,282,250. The cost per square yard per year was therefore about 1.8 cents.

My acknowledgments are due to the employees of this division for the work accom-

plished by the office during the year.

I transmit herewith the reports of the engineer of bridges, the superintendent of streets, and the superintendent of suburban roads. Very respectfully,

C. B. Hunt. Engineer of Highways.

Capt. W. D. A. Anderson,
Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.

Statement showing employees temporarily required in connection with street, road, and bridge construction and repairs and appropriations from which paid during the fiscal year ended June 30, 1915.

## SURFACE DIVISION.

Designation.	Number.	Rate per diem.
Assistant engineers	3 16	2 at \$6, 1 at \$4. 11 at \$4, 1 at \$5, 1 at \$4.50, 1 at \$3.75, 1 at \$2.50, 1 at
Rodmen Leveler Transitman Chainman Overseers Copyists Computers	2 1 1 1 2 9	\$2.25. 1 at \$3.50, 1 at \$3. 1 at \$3. 1 at \$4. 1 at \$2.25. 1 at \$4.50, 1 at \$3.50. 2 at \$4.50, 4 at \$3.50, 2 at \$3, 1 at \$2.50. 1 at \$4.50, 1 at \$4.50.
Construction suburban roads and sub Q Street Bridge across Rock Creek Pennsylvania Avenue Bridge across l	urban stre Rock Creel	a, 1915. \$25, 051. 20 sets. 2, 748. 00 k. 2, 729. 75 k. 1, 600. 552. 00

## REPORT OF THE SUPERINTENDENT OF STREETS.

WASHINGTON, August 18, 1915.

Sm: I have the honor to submit herewith the annual report of the operations under my charge for the fiscal year ended June 30, 1915.

Table H is a summary of work done by day labor under the appropriation for current repairs to streets, avenues, and alleys. The cost of such work was \$92,814.18,

including the repair of 4,750 dangerous holes. One-third of this work was sidewalk and alley work, and the other two-thirds was repairs to street roadways.

Table I is a list of work done under the permit system, wherein the property owners

requested the improvement, and paid one-half the cost, the district paying the other half. The cost of this work was \$26,246.15.

Table K is a list of work done under the assessment system. One-half of the cost of such work is charged against the abutting property. The total cost was \$159,127.17.

Table L is a list of the work paid for from the appropriation for "Replacing sidewalks and curbs around public reservations." The amount expended under this class of work was \$7,031.21.

Respectfully,

H. N. Moss, Superintendent of Streets.

The Engineer of Highways.

# REPORT OF THE SUPERINTENDENT OF SUBURBAN ROADS.

WASHINGTON, August 25, 1915.

Sir: The appropriations expended wholly or in part under this office in the fiscal year ended June 30, 1915, were as follows:

Repairs to suburban roads.....

Itemized statements of these expenditures appear in the tables herewith.

The following are the more notable features of the work for the fiscal year:

1. Construction of suburban roads and suburban streets.—In addition to streets paved with sheet asphalt, there were constructed from this appropriation about 21,555 square yards of cement roadway (1.32 miles), 30,960 square yards of macadam

roadway (3.66 miles), 10,000 square yards of gravel roadway (0.60 miles).

The cement roadways were constructed with gravel concrete mixed in the proportions 1:2:4, laid 5 inches thick, the surface being covered with one-half gallon per square yard of a specially prepared tar, over which stone chips were spread. Exclusive of grading, the total cost per square yard for this construction is about 89 cents, which is about 15 per cent higher than water-bound macadam. It is believed that this difference will seen be counterblanced by the decrease in the same seen to be a superblanced by the decrease in the same seen to be a superblanced by the decrease in the same seen to be superblanced by the decrease in the same seen to be superblanced by the decrease in the same seen to be superblanced by the decrease in the same seen to be superblanced by the decrease in the same seen to be superblanced by the same seen to be superblanced by the decrease in the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be superblanced by the same seen to be same seen to be superblanced by the same seen to be superblanced by the same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen to be same seen that this difference will soon be counterbalanced by the decreese in the cost of maintenance of the cement roadway.

Besides the grading incidental to the above construction, there was done under

separate contracts about 73,500 cubic yards of excavation.

2. Repairs to suburban roads.—The largest expenditure for repair was for the maintenance of the macadamized trunk highways leading out of the city to the District line. Of these it was found necessary to almost completely resurface the Bladensburg Road, North Capitol Street, Georgia Avenue, Park Road, Sherman Avenue, and Connecticut Avenue; as well as to extensively repair Nichols Avenue, Rhode Island Avenue, Michigan Avenue, Wisconsin Avenue, Belt Road, Massachusetts Avenue, and the Canal Road. The amount expended upon each roadway will be About \$6,000 each was expended on Connecticut Avenue and found in the table. Georgia Avenue for resurfacing. In addition to the above roads, the reconstruction of the Daniels Road was finished at a cost of \$3,925.21. The cost of resurfacing and patching on Connecticut Avenue was in excess of 15 cents per square yard, to which should be added about 6 cents per square yard for tarring, making a cost for maintenance of this road of over 21 cents per square yard. Other roads were lower in cost, in proportion to the traffic and width, but it is probable that the annual cost for repair and dust prevention amounts to an average of more than 10 cents per square yard for the macadamized trunk highways.

The above figures indicate that a rapid extension of a more durable pavement on these roads would be economical. The following figures show the approximate cost per square yard of resurfacing macadam roadways, where not too badly worn, or of

repairing them, including the average cost of grading:

For resurfacing with water-bound macadam with 2 to 3 inches of stone, 20 to 30 cents per square yard. This lasts with patching and surface treatment from one to three years, depending on the traffic.

For resurfacing with bituminous macadam on the old stone base, 2 to 3 inch layer, 50 cents per square yard. Life, probably at least five years with some repair.

For resurfacing with bituminous concrete on the old stone base, 2-inch layer, \$1.30 per square yard. Life unknown, probably 10 to 12 years, depending on base.

For laying new cement pavement 5 inches thick with tarred surface, \$1.05 per square yard. Life unknown, but probably at least 10 years.

For laying new bituminous concrete, or standard sheet asphalt, on concrete base, about \$1.90 per square yard. Life of surface about 20 years; of base, indefinite.

With the funds usually available for repairs only the cheaper methods of construction can be used, if the entire system of roads is to be kept in suitable condition for the travel which each road carries.

Approximately \$33,000 was expended during the year for surface treatments with tar and oil to prevent dust, in addition to which about \$2,400 was expended for watering streets not reached by the surface treatments.

The mileage of improved streets and roads in the District of Columbia, outside of the limits of the city of Washington, not including streets paved with standard pavements, viz., granite block, asphalt block, or sheet asphalt, is as follows:

	MILES.
Bituminous concrete roadway	3 75
Distriction of the second second	4 20
Bituminous macadam roadway	4. 30
Cement roadway	2. 98
Macadamized roadway	113. 21
Gravel roadway.	50.15

Very respectfully.

L. R. GRABILL,

Superintendent Suburban Roads, District of Columbia. To Engineer of Highways.

# Repairs to suburban roads, 1915.

1	Location.	Work.	Cost.
1	SECTION 1.—Potomac River to Rock Creek.		
ı١	Canal Road, between Aqueduct Bridge and Foxhall Road	Repair	\$202,30
1	Klingle Road, between Rock Creek and Woodley Road	do	636. 32
)	Macomb Street NW., from Connecticut Avenue east	do	280. 25
١l	Chain Bridge Road	do	140.75
\$ <b>{</b>	New Cut Road	do	298.69
1	Various roads	Oiling	645.66
H	Various streets	Tarvia	1,029.29
۱ (	Connecticut Avenue NW., between Cathedral Avenue and Chevy	Repair	5, 575.00
. 1	Chase Circle.	1 .	
! I		do	430.43
	Various roads	Oiling	2,798.37 48.72
1	Foxhall and Conduit Roads	Catch basin	
	Various streets and avenues (University Heights)	Kepair	
١	Streets in Cleveland Park	Clean gutters	596.88
ı	Little Falls Road	Denois	316.25
1	Propert 9702 9705 Connel Dand	Detaining wall	26.45
	Front 3723-3725 Canal Road Chevy Chase American University Park Murdock Mill Road	Cobble mytter	740.44
1	A marinan University Park	Penair	389.87
ı	Mandack Will Dood	do	47.00
1	Massachusetts Avenue NW., California and Wisconsin Avenues	do	838.83
ı	Atreats in Pinghurst	do	367.55
	Elliott Place, between Conduit Road and Clark Place	do	144.38
	Streets in Pinehurst. Elliott Place, between Conduit Road and Clark Place. Canal Road. Connecticut Avenue, between Cathedral Avenue and Chevy Chase.	Repair wall	73. 75
	Connecticut Avenue, between Cathedral Avenue and Chevy Chase.	Repair	451.64
	Chevy Chase Circle, across Thirty-ninth Street	do	43.75
	Belt Road, Western Avenue and Forty-first Street	l do	176.89
·	Rock Creek Ford Road, between Military Road and Rittenhouse	do	158.69
1	Street	1	l
	Broad Branch Road, between Rock Creek Church Road and	do	267.32
	Chapel Road.	l _	
	W isconsin Avenue	do	
ŀ	Massachusetts Avenue, between Wisconsin Avenue and end of	Tarvia	707.58
	asphalt.	1	l
)	Boward Street NW., Grant Road to Fessenden	Repair	214.75
7	Pierce Mill Road, between Connecticut Avenue and Wisconsin	do	163.62
	Avenne.	ا ء۔	***
9	Watering roads	do	559.25
5	Various roads	Oiling	1,629.03
			22, 133. 02
	Dangerous holes and minor repairs		11,098.05
	nandarons notes and minor tabents		11,000.00
			33, 231.07
		l	

# Repairs to suburban roads, 1915—Continued.

I	Location.	Work.	Cost.
	SECTION 2.—Rock Creek to North Capitol Street and Rigge Road.		
1007 1013 1018	Third Street NW., between Elm and Oak Streets	Gutters Macadamize Surface	\$41.0 3,925.2 876.7
029 1033		Oiling	645.6 220.3
041 044	Various roads.  Fourteenth Street NW., Spring Road to Shepherd Road.  Pifteenth Street NW., Webster to Allison.  Various streets.	Grade and regulate Tarvia	203.6
055 107	Various roads. Taylor Street NW., between New Hampshire Avenue and Fifth Street.	OilingOld material	1,029.2 2,798.3 178.3
108 126	Piney Branch Road, between Blair Road and Cedar Street  Quebeo Street NW., between Warder and Park Place	Surface	297. 5 202. 0
134	Sligo Mill Road	do	110.4
169 179	Entrance to grounds United States Soldiers' Home	Gravel	32.0 122.4
190	Hobart Place NW., west of Georgia Avenue.  Shepherd Street, from Georgia Avenue to Fourteenth Street	do	91.6
205 242	Sixteenth Street, north of Spring Road	do Extend pipe	145.2 46.2
084	Intersection Eighteenth Street and Irving Fourteenth Street NW., between Spring Road and Kennedy Street.	Cobble gutter	605.3
1413 2∠2	Streets in Petworth.  Randolph Street NW., between Fourth and Flifth.  Fifteenth Street NW., Allison to Buchanan Daniel Road.  Rock Creek Church Road, between Fifth Street and Riggs Road.	Repairdo	249.1 43.1
236	Fifteenth Street NW., Allison to Buchanan	Road machine	11.5
245 267	Pariel Road	Repair	147.0 206.8
272	Streets in Brightwood Park. Riggs Road from Blair Road to District of Columbia line.	do	73.0
059	Riggs Road from Blair Road to District of Columbia line	do	929.1
060 135	Blair Road, from Riggs Road to Cedar Street. Georgia Avenue NW., between Randolph and Allison Streets	do	478.5 1,461.4
234	Allison Street west of Georgia Avenue	Road machine	21.2
000 207	Allison Street west of Georgia Avenue.  Watering roads.  Various roads.  do.  do.	Offine	779.5 2,177.3
28	do	Emulsion	793.
30 10	Georgia Avenue NW., between Allison Street and Piney Branch	Tarvia	5,727.0 1,540.4
11	Road. Georgia Avenue NW., between Piney Branch Road and District	· -	3,042.
	line.		29, 353. (
- 1	Dangerous holes and minor repairs		
			<u> </u>
	SECTION 3.—North Capitol Street to Eastern Branch.		39, 734. (
	SECTION 3.—North Capitol Street to Eastern Branch. Various roads		39, 734.
44	SECTION 3.—North Capitol Street to Eastern Branch.  Various roads		39, 734.
44 54 77	SECTION 3.—North Capitol Street to Eastern Branch.  Various roads.  Various streets.  Various roads.  Central Avenue, between Fourth and Seventh Streets		39, 734.
44 54 77 78	Various roads. Various streets. Various roads. Central Avenue, between Fourth and Seventh Streets. Central Avenue, between Rhode Island Avenue and Franklin	Oiling	285.1 1,029.2 4,007.1
44 54 77 78 80	Various roads. Various streets. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street N E., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue	Oiling	285.1 1,029.1 4,007.1 305.1 556.1
44 54 77 78 90 06 20	Various roads. Various streets. Various roeds. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks.	Oiling	285.1,029.1 4,007.1 306.1 556.1 148.1 81.1
44 54 77 78 80 06 20	Various roads. Various streets. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets	Oiling	285.1,029.1 4,007.1 305.1 556.1 148.1 81.1 123.1
44 54 77 78 80 06 20 28 21	Various roads. Various streets. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets	Oiling	285.1,029.1 4,007.1 305.1 556.1 148.1 81.1 123.1
44 54 77 78 80 06 20 28 21 42	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets Harewood Road, between Michigan Avenue and Rock Creek Church Road. Lincoln Avenue, between V and Michigan Avenue.	Oiling	285.1,029.2 4,007.1 305.5 556.4 81.1 123.7 390.6 480.6 318.6
44 54 77 78 90 96 20 28 21 42 99	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road Lincoln Avenue, between V and Michigan Avenue Sergent Road.	Oiling	285. 1,039. 4,007. 306. 5565. 148. 81. 1233. 280. 6 490. 6 318. 6 149. 159. 159. 159. 159. 159. 159. 159. 15
144 54 77 78 80 06 20 28 21 42 09 13 56	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road Lincoln Avenue, between V and Michigan Avenue Sergent Road.	Oiling	285. 1,039. 4,007. 305. 555. 148. 81. 123. 280. 490. 318. 149. 119.
144 154 177 178 180 190 190 190 190 190 190 190 190 190 19	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road Lincoln Avenue, between V and Michigan Avenue Sergent Road.	Oiling	285. 1,039. 4,007. 305. 555. 148. 81. 123. 280. 490. 318. 149. 119.
44 54 57 77 78 80 90 62 22 42 91 13 56 68 69	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road Lincoln Avenue, between V and Michigan Avenue Sergent Road.	Oiling	285. 1,039. 4,007. 305. 555. 148. 81. 123. 280. 490. 318. 149. 119.
144 54 777 778 80 06 20 228 221 42 29 13 56 68 69 20 228	Various streets. Various roads. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Otis and Michigan Avenue. Eastern Avenue, between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road Lincoln Avenue, between V and Michigan Avenue Sergent Road.	Oiling	285. 1,039. 4,007. 305. 555. 148. 81. 123. 280. 490. 318. 149. 119.
144 54 77 78 89 90 96 220 228 221 42 99 13 56 68 69 20 228 40	Various roads. Various streets. Various roads. Central Avenue, between Fourth and Seventh Streets. Fourth Street NE., between Rhode Island Avenue and Franklin. Brookland Avenue, north of Michigan Avenue and Franklin. Brookland Avenue, north of Michigan Avenue. Tenth Street NE., between Bladensburg Road and Baltimore & Ohio R. R. tracks. Seventh Street NE., from Hamlin to Lawrence Streets. Harewood Road, between Michigan Avenue and Rock Creek Church Road. Lincoln Avenue, between V and Michigan Avenue. Bergent Road. Queen Chapel Road. End of Douglas Street NE., adjoining Baltimore & Ohio right of way. Second Street NE., between V and Rhode Island Avenue. V Street NE., between Second and Third Streets. Streets in Brookland. Rhode Island Avenue, Fourth to Twenty-fourth NE. Streets In Langdon.	Olling Tarvia Olling Repair do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do do	285. 1, 029. 4, 007. 556. 556. 81. 133. 390. 490. 490. 318. 62. 62. 62. 62. 62. 62. 62. 62. 62. 62
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# Repairs to suburban roads, 1915—Continued.

Location.	Work.	Cost.
SECTION 4.—East and south of Eastern Branch.		
M Street SE., between Anacostia Road and Thirty-fourth Street.	Gravel	. \$146.
Bennings Road	Repair	401.
Giesboro Road	do	. 152.
Southwest corner Kenilworth and Polk Streets	Outlet	. 25.
Various roads	OilingCulvert	. 285.
Division Avenue, Bennings, D. C. Chester Street SE., between Valley and Mapleview Streets	Repair	
Central Avenue, between Bennings Road and District of Columbia	Ofling	. 2,077.
line	Gravel	. 209.
Nichols AvenueOrd Street NE., between Forty-fourth and Forty-fifth Streets	Clean Shape	. 141. 18.
Highview Place	Repair	. 53.
Streets in Deanwood	Shape	. 59.
Livingston Road	Repair	. 161.
Bennings Road	do	. 89.
Walker Road. E Street SE., west of Anacostia Road	do	118. 124.
Magazine Road	do	237.
Wheeler Road, between Alabama Avenue and Oxen Road	do	. 88.
Alabama Avenue, between Nichols Avenue and Good Hope Road	d. . <u></u> do	. 170.
Streets in Burrville. Nichols Avenue, Sheridan to Alabama Avenue.	Shape	.  39.
Bowen Road	Repairdo	. 778. 302.
Ridge Road	do	. 139.
W Street SE., between Sixteenth and Eighteenth Streets	Gravel	.l <b>24</b> 6.
Bennings Road NE., Oklahoma Avenue to bridge	Tarvia	. 168.
Shannon Place, U to Talbert Road Livingston Road SE., Oxen Run to District of Columbia line	Road machine Gravel	. 99. 225.
Various roads	Emulsion	. 80.
Alley square 5606	Terra-cotta pipe	.  13.
Naylor Road	Gravel	. 156.
Various roads	Watering	. 367.
Do	Oiling	
B		
Dangerous holes and minor repairs	·-	9,577. 9,683.
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## REPORT OF ENGINEER OF BRIDGES.

WASHINGTON, D. C., August 11, 1915.

SIR: I have the honor to submit the following report of the operations under my charge for the fiscal year ended June 30, 1915.

The expenditures from the appropriation for the construction and repair of bridges were as follows:

Bridge No.	Character of work.	Cost.
34 25 20 52 30 54 70 27 25 129 128 35 36 36 37 37 38 38 38 38 38 38 38 38 38 38 38 38 38	East side of Georgia Avenue adjacent to Calvert Street, constructed 95-foot wooden railing.  P Street Bridge, painted Pierce Mill Road, painted.  Bennings Road, painted.  do	\$30 (44 320 74 320 1, 674 321 194 4, 522 1, 841 1, 222 34 32 32 32 32 32 32 32 32 32 32 32 32 32
	Salaries, engineer of bridges office.   Coal	21, 280 3, 288 31 41 119 118 24, 852
	Total net expenditures	21, 495
	RECAPITULATION.	~ ~~
	Appropriation Repayment account railroad work	20,000
	Total net expenditures	21,659

The following bridges were repainted: Bridge No. 34, P Street over Rock Creek; Bridge No. 25, Pierce Mill Road over Rock Creek; Bridge No. 20, Pierce Mill Road over Rock Creek; Bridge No. 52, Benning Road; Bridge No. 27, Klingle Road Visduct.

The following bridges were refloored: Bridge No. 49, Kenilworth Road over Watts Branch; Bridge No. 13, Military Road over Rock Creek; Bridge No. 30, Calvert Street; Bridge No. 54, Pennsylvania Avenue SE. (downstream side); Bridge No. 27, Connecticut Avenue over Klingle Road; Bridge No. 25, Pierce Mill Road crossing Piney Branch.

Steel concrete bridges were erected over Watts Branch, viz: Bridge No. 131, Fifty-seventh and Dix Streets; Bridge No. 128, in line of Hunt Place; Bridge No. 204, Division Avenue; Bridge No. 129, Forty-fourth Street, concrete masonry abutments and wooden floor system. The abutments were built to suit the present street level; at some future time the street will be brought to the established grade, the abutments will then be raised and a steel concrete floor system will be provided.

Work upon the Q Street Bridge, under contract No. 5520 with A. L. Guidone & Co., has progressed and it is expected that it will be completed in September next. The bronze buffaloes constructed by Mr. A. Phimister Proctor under contract with the

District have been installed in position.

Contract No. 5741, with William F. Cush, for grading Q Street between Rock Creek and Twenty-eighth Street was about half completed.

Contract No. 5710, for constructing the Pennsylvania Avenue Bridge across Rock Creek, was made with the Hardaway Contracting Co. This bridge will probably be completed within the present calendar year. It will be 70 feet in width, having reinforced concrete deck supported by five reinforced concrete arch ribs, 200 feet span. The two cast-iron arched water mains will be left in original positions between the middle and intermediate arch ribs. The arch ribs are founded upon solid rock. The spring and trim of the bridge will be North Cambing granite. Provision has been made facing and trim of the bridge will be North Carolina granite. Provision has been made for the emplacement of the Capital Traction Co.'s tracks as required by the act of Congress which authorized the structure.

Contract No. 5724, for reconstructing the fish wharves, was made with W. D. Murray & Co., and the work is in progress. This work should be completed in the early part of March, 1916. The contract provides for the construction of 546 feet of concrete revetment wall upon pile foundation and of three wharves having an aggregate area of 22,800 square feet of surface. These wharves are of reinforced concrete construction with reinforced concrete floor slabs and are supported upon piles, the caps of which

are situated at the plane of mean tide.

The Benning Viaduct work has been delayed because the proceedings for condemnation of land necessary for widening the road have not been completed. jected structure will consist of steel girders supported by concrete piers and abutments. The piers adjacent to the car tracks will be reinforced to provide for derailments.

The ramps will be of cellular type, consisting of reinforced concrete walls with earth fill.

The bracing of the Connecticut Avenue Bridge across Klingle Road was improved by replacing the struts of the lower chord lateral system with larger and heavier ones. This gave stiffness and lateral stability to the structure in which it was formerly deficient. This feature had created an impression of insecurity in the minds of many persons who traveled over the bridge. It is now of ample strength and capacity for the traffic of the section of the District served.

Provision should be made for the following:

Replacement or reconstruction of Aqueduct Bridge because of insufficient capacity and defective approaches; replacement of Calvert Street Bridge because of inadequate capacity; replacement of timber floors of M and P Street Bridges across Rock Creek by asphalt floors upon buckle plates. In addition to the above the smaller bridges with wooden floors should be replaced as rapidly as possible from the appropriations for constructing and repairing bridges.

Very respectfully,

D. E. McComb Engineer of Bridges.

The Engineer of Highways.

Table A.—Street railroads in operation in District of Columbia, July 1, 1915.

	Undergrou	nd electric.	Overhead		
Name of company.	Double track.	Single track.	Double track.	Single track.	Total.
Washington Railway & Electric Co	20 19	Miles. 6.34 3.60	Miles. 26.77 3.57	Miles. 8.99	Miles, 60. 19 27. 36
East Washington Traction Co				. 50 2. 65 2. 33	.50 2.65 2.33
Total.  Tracks used in common by Capital Traction and Washington Railway & Electric Co  Tracks used in common by Washington Railway & Electric Co. and Washington & Vir-	43. 28 1. 55	10.40	30.34	9.47	93. 49 1. 55
ginia Co	.70				.70
Total	45. 58	10.40	30.34	9.47	95.74

Tables B and C.—Character and extent of roadway pavements July 1, 1915. SQUARE YARDS.

	2	QUARE	YAKDS.				
Section.	Asphalt.	Asphalt block.	Asphaltic concrete, concrete base.	conc	haltic crete, one one one one		VIUT
Northwest, city Northeast, city Outheast, city Outhwest, city Heoryetown Northwest, suburban Northeast, suburban Northeast, suburban	1,710,564 336,486 191,068 234,122 142,436 241,694 58,347 6,251	26, 455 194, 748 226, 114 38, 222 23, 075 79, 087 6, 925	9,674 3,127 8,019 13,535 4,144 25,855 14,354	36	3,372 1,082 905 3,680 3,049	154, 82 18, 29 42, 87 173, 25 39, 88 950 25, 91 047 5, 97 4, 66	î
Total	2,920,968	594,626	78,708	51	1,088 51,	997 465,68	5 25
Section.	Cobble.	Macadan estimate	Gutter aspha stree	alt	Gutters on asphaltic concrete streets.	Pavements maintained by street railroads.	Total
Northwest, city	33,146 13,122 21,865 12,618	89,50 62,00 30,80 5,70 1,366,45	56,000 112,245 89,500 27,329 62,050 13,750 20,800 21,489 5,700 4,675 1,366,450 22,342 319,500 4,881 50,000 1,678		1,128 231 898 1,254 498 5,871 1,049	281,771 69,316 48,328 56,820 31,816 54,668 9,000 7,370	2,411 74 614 53 1,81
Total	80, 751	1,980,00	208,	389	11,201	559,089	7,00
		MILE	AGE.				
Section.	Asphalt.	Asphal block.	Aspha concre concre base	ete, ete	Asphaltic concrete, stone base.	Cement concrete.	Granit rubi
Northwest, city	87. 96 17. 42 10. 22 12. 73 8. 33 13. 55 2. 87 46	1. 8. 6 11. 2 1. 4. 2 4. 30.	56   50   51   52   53   53   53   53   54   55   55   55	0. 51 . 19 . 43 . 68 . 49 1. 31 . 97	0. 24 . 17 . 06 2. 00 . 21	2. 26	10 15 46 12
Total	104. 04	30.	·/   ·	1. 08	2.08	3.00	
Section.		Vitrified block.	Cobb	le.	Macadam, estimated.	Gravel and unim- proved, estimated.	Т
Northwest, city		0.1	30 1 24	1. 60 . 66 1. 08	2. 79 5. 00 3. 03 1. 40 . 24	3. 12 5. 50 9. 00 3. 00 . 76	
Northwest, city Northeast, city Southeast, city Georgetown Northwest, suburban Northeast, suburban Southeast, suburban		. (		•••••	84. 48 22. 53 3. 77	. 76 58. 73 46. 79 34. 52	

Material.		2.4.4							
	8 by 8 inch curb.	6 by 20 inch curb.	Okroular curb.	Cost of material.	Cost of extra work.	Amount of contract.	Total cost of work.	Contractor.	
Ö	Lin.ft.	Lin.ft.	Lin.ft.	\$182.75	\$7.06	\$3,447.08	\$3,586.89	Cranford Paying Co.	
8	993. 36 2, 592. 04	1,825.20	90. 71 139. 92 144. 44	1,011.99 1,761.17 2,640.50 123.75	52.86 115.22 18.03	5, 379. 34 9, 159. 64 11, 480. 98 3, 635. 59	6,444.19 11,036.03 14,149.51 3,759.34	Do. Do. Do. Do.	
555555	1, 984. 98 84. 54	75. 51	86. 59 126. 81 18. 84 81. 78	278. 20 1, 987. 67 306. 94 201. 65 841. 72	385. 44	6,420.91 12,324.52 9,035.52 6,687.07 7,819.12	6,699.11 14,312.19 9,342.46 7,274.16 8,060.84	Do. Do. Do. Do.	
10	818. 98 525. 00		96.80	878.10 482.25		8, 198. 73 2, 251. 45	6, 071. 83 2, 863. 70	Dô. Dô.	
0 0 5 6 12	1, 183. 50 1, 381. 66 1, 551. 80		58.52 66.69 8.35	22.50 1,360.83 141.19 1,467.20 1,467.23	12.51	285.04 3,911.47 4,255.39 2,944.50 8,630.02	907. 54 5, 064. 90 4, 396. 58 4, 291. 70 5, 057. 25	Do. Do. Do. Do. Do.	
9	11,065.76	1,400.71	873.46	14, 150. 68	591. 12	98, 496. 37	11 <b>3, 23</b> 8. 12		

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7. 92 3. 25 4. 00 7. 50 1. 25 1. 75	\$9  44  64  45  35
B. 75	1,30
8. 75 0. 25 8. 50 8. 60 7. 25 6. 75 6. 75 8. 75 7. 38	1, 14 14 25 34 24 34 34 20 63
0.38	-1.5
7.15	2,31
7. 70	35
0. 10	6t
1	
5.38	11,74

Table G.—Charges against street railroads (work in connection with paving, resurfacing, and minor repairs for fiscal year 1915).

## WASHINGTON RAILWAY & ELECTRIC CO.

WASHING	ON RAILWA	Y & ELECTRIC CO	<b>).</b>	
Street.	From-	То—	Section.	Amount.
with the faryland Avenue  (inor repairs on various streets, Distric, 266 cubic feet material in bulk at ports, 500 pounds of asphaltic cement at ports.	S	Florida Avenue Fifteenth Twenty-eighth pair force	Northwest Northeast Northwest	\$437.9 157.2 1,035.2 4,377.8 1,784.1
Total				7, 805. 3
C.	APITAL TRAC	CTION CO.	•	
aryland Avenue				\$65.2 52.4 50.5 3,089.1
EAST WA	shington H	EIGHTS R. R. CO	•	
emsylvania Avenue	Fifteenth	Bridge	Southeast	\$69.0
TABLE H.—Appropriatio	n "Repairs to	streets, avenues,	and alleys, 191	5."
VORK DONE BY DAY LABOR U	-			
srick sidewalk relaid .sphalt block paved .sphalt block repaved .trified block paved .trified block paved .trified block repaved .trified block repaved .acadam roadway .urb resetlag relaid .sphalt tile relaid .sphalt tile relaid .obble relaid .trading			dodododododododo.	. 1,66 . 19,31 . 2,04 . 11,55 . 16,19 . 8,631,2 . 5,13 . 46 . 5,16 . 14,06
abor				\$83,330.9 9,483.2
Total				. 92,814.1
iorthwest sention east of Sixteenth Str	RECAPITUL			e20. 270. °
forthwest section east of Sixteenth Str forthwest section west of Sixteenth St fortheast section. outheast section. leorgetown section.	• • • • • • • • • • • • • • • • • • • •		• • • • • • • • • • • • • • • • • • • •	16,972.6 15,254.2 10,312.6 8,894.4 21,100.1

Dangerous holes repaired, 4,750.

TABLE H.—Appropriation "Repairs to streets, avenues, and alleys, 1915"—Costd.

WORK DONE BY DAY LABOR UNDER SUPERVISION SUPERINTENDENT OF SUBURBAN ROADS.

Job No.	Location.	Work.	Cost.
1010	Sherman Avenue NW. between Columbia Road and Park Road	Renair	250.0
1011	North Capital Street between V and Michigan Avenue	do	349, 6
1015	Rarry Place between Georgia and Sherman Avennes	do .	1 177 18
1017	Lincoln Road between R and V Streets	do	34.5
1018	Lincoln Road between R and V Streets. T Street NE. between R incoln Road and Second Street. Northwest and southwest corner Park Road and Sixteenth Street	do	157.
1021		l ofomeh	1
1022	Lamont Street NW. between Warder and Sixth Streets	Repair	14.9
1024	Park Road from Soldiers' Home to Twentieth Street	40	1,574
1027	Various streets	Tarvis B	2,311.18
1032 1039	Adams Mill Road between Harvard and Irving Streets	Kepair	12.0
1056	East side of roadway Connecticut Avenue Bridge	qo	125
1000	Park Road between Sherman Avenue and Soldiers' Home	Tervia	1
1076	Trumbull Street between Sixth and Georgia Avenue, Sixth Street between College and Elm Streets, and College Street between Fourth	Repair	
	and Sixth Streets.		·
1078	East side of Third Street between Elm and Oakdale Streets	A. B. gutters	71.0
1081	California Street NW., Phelps Place to Massachusetts Avenue	Repair	367.55
1083	Fifth Street NW. between Elm and W Streets	do	71.0
1094	Perry Place NW. from Fourteenth Street westward	do	82.1
1100	Champlain Avenue NW. between Florida Avenue and Kalorama Road.	. <u></u> do	켔
1033	Southeast corner Sixteenth and Newton Streets	Change radius of curb.	10L N
1085	Park Place between Rock Creek Church Road and Columbia Road	Grade	64.6
1116	Connecticut Avenue Bridge	Repair	23.5
1161	Fifth Street NW. between Elm and W Streets	Stone and	26.6
1119	Fourth Street NW. between W and Bryant Streets	Repair	16.5
1148	Kilbourne Street NW., Seventeenth to Mount Pleasant	do	108.11
1115	Kilbourne Street NW., Seventeenth to Mount Pleasant Warder Street NW. between Columbia Road and Rock Creek Church Road.	l	
1100	Sixteenth Street NW. from Piney Branch Bridge to Reservoir	do	20.2
1102	Michigan Avenue between North Capitol and First Streets	do	20.20
1157	Various streets	Oiling	1,100.0
1028	Michigan Avenue between North Capitol and First Streets	Repair	156.3
1187	Seventeenth Street N w. Detween Newton Street and Park Road	00	
	Dangerous holes and minor repairs	• • • • • • • • • • • • • • • • • • • •	12,943.5 6,440.#
1166	Fifteenth Street NW. between Irving Street and Columbia Road	Macadam	19,3%L% 785.0
2100	Total		20, 120.04

				Cement		Curl	Curb set.	Vitrified	Asphalt		Old blue	
No.	Location.	For whom done.	Grading.	sidewalk laid.	Curb reset,	6 by 20 inches.	8 by 8 inches.	block paved.	block paved.	Brick sidewalk,		Cost.
3000	Noel House, Seventeenth and Rose-	Evelon Wainwright	Cu. yds.	Sq. yds.	Lin, ft.			Sq. yds.	Sq. yds.	8q. yds.		\$50.91
_	dale Streets NE.	Arrelation D Clark in	100					900				6 000
	S22 H Street NE. South side Macomb Street NW. be-	Emma Regan. W. C. and A. N. Miller.		130.00								150.91
2004	fifth Streets.  East side Fourteenth Street NW. between Hamilton and Ingraham	D. J. Howell & Son		353.31								431.90
2009	rolbur	Geo. C. Pumphrey A. P. Clark, Jr A. C. Moses Construction Co.	121	732.64	8.25	684.39	106.21	264				1, 592.37 134.10
2012	Eighteenth Street. ATI E Street SW. Alley, square 580. North side Quebec Street from War-	R. N. Smith. Terrell & Little Co. Kennedy Bros. (Inc.)	144	295.75	18.80	9.42	9.42	13 204				26.82 427.40 599.92
2015	der Street to east line lot 154. Corner Fifth and Taylor Streets NW. Northeast corner Twenty-first and I	J. S. Gruver E. R. Fox		184.69	182.00							224.95
2017	Streets NW. Front 7 Dupont Circle. Fourteenth and Perry Place East side Skreet SE. be- tween Massachusetts Avenue and	John C. Walker John Mitchell Saml. Shapiro	450	86.02 124.44 135.87								93.01 151.56 345.71
2023	C Street. Lanier Place, side of lot 823, square	J. A. Holmes		85.53				***************************************			***************************************	104, 17
2023	Fourteenth Street NW., between	John Mitchell		18.13								22.08
2024	3624 to 3632 New Hampshire Avenue NW. and north side Princeton Place, running west from New	Chas. L. Tankersley		240.14	20.31	7.85		***************************************				335.04
_	Sixteenth Street NW. between Long-	Thos. Somerville Co		196.39			198.30	***************************************		************		490.19
_	Northwest corner Sixteenth Street and	L. E. Brenninger	*********	352.68			413.85					961.49

Table I.—Regular permit, 1916—Continued.

				Curb	Curb set.	set.	Vitrified	Asphalt	Briok	Old blue	
	For whom done.	Grading.	sidewalk laid.	reset.	6 by 20 inches.	8 by 8 inches.	block paved.	block paved.	sidewalk.	stone curb.	Cost.
Warner Street N.W., between Fifth	Washington Sanitary Im-	Cu. yds.	Sq. yds.	Lin.ft.			Sq. yds.	Sq. yds.	Sq. yds.		\$210.24
Street and New Jersey Avenue, lots 170 to 182. South side Taylor Street NW., be-	provement Co. Middaugh & Shannon			9.42						133	142.80
tween Fifth Street and New Hamp- shire Avenue.  Kenyon Street NW., between Seven-	A. C. Moses Construction Co.		72, 16								85.87
Eighteenth Street NW. between Kil-	do	**********	93.38		***********	*********	ATTACABLE STATE		- Carterian		113,73
Colorado Avenue, northeast corner In-	John Dolph	62	171.55	*********	********	*******		0000000		- Googie	214.20
Franam Street NW., West side Nineteenth Street NW., between Kenyon and Lamont	Geo. Y. Worthington & Son.	New Contraction	Section 1	***************************************	***************************************	166.00				Contractor.	181.00
Streets, Portion of alley, square 2865. Lot 24, Hamin Street NE., Twenty-	Hellen Johnson	21 80	26.67				137				227.03 67.13
Lot 25, Hamilin Street NE., Twenty-	O. I. Nigh	99	26.67	**********	***************************************	*********	***************************************	-			67, 13
Lot 26, Hamlin Street NE., Twenty-	F. A. Linger	1794	79.45		*************					***************************************	200, 42
Lot Soo, Hamin Street NE., Twenty-	W. L. Simcox	15	33.66	***************************************	***************************************	**********		*********	*********	**********	84.31
	Wm. L. Browning	8	66.00				11				65.89
west side Fifth Street NW., between	Middaugh & Shannon	75		369.00		***************************************					86, 48
Fourth Street NE., from end of ce-	J. S. Gruver	12	80.00				***************************************			***************************************	104.37
West side Twenty-sixth Street NE.,	F. A. Linger	84	44.64	***************************************			domes.				102.88
East side Thirteenth Street NW., be-	R. F. Lukel		79.24	*********			***************************************		000000		96.62
South ade Gallatin Street NW., be-	do	*********	56.73		***************************************	(manual)			Section of the second		00.10
	Wm. D. Sollbeam		200					The second		The state of	105.43

<b>1</b>	132.12	448 888	3, 504. 73 46. 71	47.28	28.58 86.88	10.33 13.21 77.51 166.97	3.03 37.12 61.97	7. 10 5. 99 38. 58	78.14	33.80	2, 125. 345.90 42.90	213.58 923.26	1,868.30	332. 47	278.61	20.30
										:						_
		35														_
•			1,500													
											1,060 206					
									-				894.02			_
			18.84									438.20			:	_
												15.00 15.30	8.3			_ :
67.60	130.50	265.00 202.16	33.00	91.00	245.28 245.08	13.50 13.50 136.23	37.25 61.48	448 888	88.00	90.00	33.00	185.23 295.00	587.33	271.67	228.75	16.67
8		25	1, \$8								88				•	
Dulin, Martin Os.	Натту А. Kite	Saml. J. Prescott. Augustus H. Quigley. Chat. J. Walker	Geo. Y. Worthington & Son. Harry K. Boss	R. P. Whitty & Co	Chas. E. Hagner	W. E. Waggener G. L. Bopkins W. C. Carter Geo. Schafer D. J. Dunigan	H. C. Cook. W. B. Shaw. Ed. Block.	R. H. Hagner & Co A. Golden Donaldson B. H. Gruver	J. S. Gruver	do	Kennedy Bros. do D. J. Dunigan	Wills Bros. Co. Geo. Y. Worthington & Son.	op	B. H. Gruver	F. A. & W. C. Blundon	Chas. J. Walker
Square 1909, lot 18, Fifteenth Street N.W., between Hurvard and Fuller	Streets. West side Sixteenth Street SE., be-	Neal Street NE, 1015 33 to 56	Buchanan Streets.  Alley, square 2598. Surfa side California Street, between Tweety-third and Twenty-fourth	root	2123 Le Roy Flace West side Fifth Street NW., between	Scholbrett and Tayors Streets.  1483 Chapin Street NW. 1463 Chapin Street NW. 1465 Chapin Street NW. 1465 Chapin Street NW. 1465 Chapin Street NW. South side Kalorama Road, between	Streed Dand Seventeenin Streets, 1925 Calvert Street NW. 2882 Macomb Street NW. Lots 35 to 36, square 77, Twenty-first	and H Streets NW. 2125 and 2129 Le Roy Place NW. 1706 New Hampshire Avenue NW North side of A Street SE., between	Alison Street NW., between Georgia Avanue and Iowa Avanue.	Thirty-eighth Street NW., between Fulton and Garfield Streets.	Alley, square 3034. Alley, square 3031. East side Sherman Avenue NW. be-	Front new Emergency Hospital Front new Emergency Hospital North side Irving Street NW., be- tween Mount Pleasant and Eigh-	teenth Streets.  North side Irving Street and Adams Mill Road, between Eighteenth and	Kenyon Streets. North side Upshur Street, Illinois	Avenue and Grant Circle. Northeast corner Fifteenth and Alli-	4402 Georgia Avenue NW
200	2016	2000	2053	2056	2057	2050 2061 2062 2063 2063	2076 2077 2080	2087	2085	9802	2000	2048	2002	0900	1900	5000

TABLE I.—Regular permit, 1915—Continued.

			Cement	No.	Curb set.	set.	VitriBed	Asphalt	-	Old blue	
	For whom done.	Grading.	sidewalk laid.	curb reset.	6 by 20 inches.	8 by 8 inches.	block paved.	block paved.	Brick sidewalk.	stone curb.	Cost.
South side Quebec Street, from War-	Kennedy Bros	Cu. yds.	Sq. yds. 278.36	Lin.ft.	0.32		Sq. yds.	Sq. yds.	Sq. yds.		8508.99
der Street to east line lot 182. North side Princeton Street NW., from Warder Street and west side	ор		62.03	3,14	9.50				1		248.30
of Warder Street. Northwest corner Newton and Park	Harry A. Kite	***************************************	126.06	**********		Action of the Control	- Contract				154.44
West side Nineteenth Street NW., between Kilbourne and Lamont	Simon Oppenheimer		55.73					***************************************			67.88
403-409	Saml. Shapiro		143.19	************				************			174.40
Northeast corner Twenty-second and	Wm. Pfeill	000000	218.69					*********			223.59
Twenty-second Street, from north- east corner Twenty-second and	do		119, 52			· · · · · · · · · · · · · · · · · · ·				***************************************	120, 47
New York Avenue NW. Fourteenth Street NW., between In-	J. S. Gruver		35.55			-	***************************************				43.30
granam Streetand Colorado Avenue.	Milton Construction Co	75	132,91	************		********	*********				210.71
Eighteenth Street NW., from Irving	Kennedy Bros.	***********	86.85	***************************************	***********		***************************************				105, 78
Street, to alley, square 2088. Alley, square 2714. Southeast corner Fourteen-and-a-half	Jean Paul Muller	125	107.24	***************************************			181				466.27
and C Streets NE. East side Tennessee Avenue NE., be-	do		127.40	***************************************	***************************************	*********					128, 41
between	do		272.12							**********	201.33
NE., lots	do	**********	123,46	211.00	***************************************			*******			185, 92
Macomb	W. C. and A. N. Miller		102.39		-				· · · · · · · · · · · · · · · · · · ·	***************************************	124.00
West side Warder Street NW., from	Kennedy Bros		146.93	en contract	*********	P. Parenter			- continue	*********	178.06
and La-	W. S. Phillips	*********	207.32	0.42	35.00						200, 50

'ERATION	172.41	18. 90 884. 94 1,216.72 1,787. 90 2,390 1,600 1504 133	1504	1,600	2,390	1,787.80	1,216.72	3,474\ 10,518.90 884.94 1,216.72 1,787.80 2,390 1,500	g	:	roets. ets.	North Captuol and Fries Effects. Belmont Road NW, between Nine- teenth and Twentieth Streets. Total
OP	1 408.18	372.80						372.80	244.07	•	D. J. Dunigan	2066 North side of V Street WW., between
	1 150.27	81.83 194.80									BE. be Vernon G. Owen	2112 Front 125-127 Lincoln Avenue NE 2063 East side Kentucky Avenue SE., be-
	145 28.8 28.8	25.25									OVV D. E. Nichol Corocran Corocran Cartery of Art.	2101 4406 to 4408 Georgia Avenue NW.

<sup>1</sup>Appropriation, 1914.

TABLE K.—Assessment work, 1915.

			1			Curb set—		Vitrined	Asphalt	1111111		
No.	Location.	Grading	cement sidewalk.	reset.	6 by 20 inches.	8 by 8 inches.	Old.	block payed.	block paved.	paved.	block.	Cost
3003	Alber, square 3044.	Cu. yds.	Sq. yds. 15,00	Lin.ft. 36.00	18.84			Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	\$1, 447. 44
2011	North side Randolph Street nw. from First to Second Streets	1	133, 62			***************************************	************	***************************************	***************************************	**********		135.
3020	2 5	1,571		***************************************		***********		518.00			***********	3,636.16 1,585.94
300	Struct.		124.07			200200000	Salaragias					113,
3630	Alley, square 2615.	230	102,21		18.81				1,231		***********	4,096,22
3000	Alley, square (10) East half alley, square 1000	150				**********		286.50				611,15
3035								1,100.00	375			1, 627.
3041	Both sides Twentieth Street nw., from Kalorama to Bel- mont Road.			230.00	629, 30	***********						846.
3062	East side Kentucky Avenue se, south of C Street.  East side Fifteenth Street ne., from North Carolina Ave-		148,90				***************************************		********	******	******	151.
3066	nue to C Street. South side of East Capitol Street, from Seventh to Eighth		168, 60		***********	**********						169, 95
SURS	Streets Alley somere 3223	1 554	421.52		***************************************	18.84		973.00	200		***************************************	3,706
3071	Alley, square 1038.							1,477.00				2,762.
3073	Alley, square 3051.	317			9.42			324,00	250			808
3076	Alley, square 650.	200		_	9,42			460.00	*******			639.
	Streets		308.12	140.00	***************************************	*********	10,00					362.
3000	Khode Island Avenue nw., between Scottand Iowa Circle. Alley, square east of square 3533.	10				994,36		232.90				1,308,
3004	Both sides Brown Street nw., from Newton to Oak Streets.					858.00		distant.	*********			1,450
3008	Both sides G Street se, from Third to Sixth Streets.		2,737.52	1,697.80		004.01	187.00					3, 421.
6116	Twenty-fourth Streets.					248, 20					***************************************	481.
0110	west side Sixteenin Street nw., from Kennedy to Long- fellow Streets.					130, 52						323.09
8130	rest side Third Street so., between E Street and South		333, 04	200.40								435, 26
	A Street, Capitol Street no., between East Capitol and											a course shall

24.8 27.8 80. 13	813.97	217.06 1,169.71 5,960.93	3, 483, 29 1, 342, 91	643. 52 1, 568. 48 716. 17	901.85 645.89 944.96 1,063.75	89.39 398.42	720.88 564.07 22.84	36.07 135.46	3, 982 88 8, 58 88 8, 58 88 8, 58 88 8, 58	2,381.99 3,678.18 3,678.18 4,48.48
		31								
		1,847	88		371			::	ı,	306 228
		280.00	1, 167. 90	690.00 400.00	248.00		230.00		880.00 86.00	716.00 1,671.00 1,673.00
			110.35							
		901.36			375.03		323.75	<u> </u>		
10.00 10.00	419.92		81.0± 28.05		40.00 18.84				8	18.98
231.60	<b>4</b> 8	21.8			9.				120.35	8:
200.43 215.98 702.74	84 28 84 28	<u>::</u>	1,016.74	682 11	398.24	73.40	215. 57	32 178.28	151.46	3
	=	1,598	\$ 68 \$ 68	436	88	138	52 75 125 126		1.475	1,000
East side Eighth Street ne, between Massachneetts Avenue and A Street ne, from Eighth to Ninh Streets. Both sides Massachusetts Avenue ne, between Eighth and Ninth Streets. Both sides Elevanth Street nw., between Pennsylvania Avenue and E. Street nw.,	West side Fourteenth Street ne., from North Carolina Avenue to A Street and north side of A Street, from Fourteenth Street to Reservation 236. School Street workers of Nordridge Street ne., from Twenty-fourth	North side California Street, between Phelps Place and Twenty-third Street.  The World Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street	Alley, square 253. Alley, square 253. Alley, square 1868. South side & Street ne, from North Capitol to First Streets North side of H Street nw. from Twenty-first to		873	East side Sixteenth Sireet ne, between A and East Cap- itol Streets North side A Street ne, between Sixteenth and Seven- teinh Sireets Freeth Sireets Freeth Sireets	Street West side Eleventh Street nw., from Euclid to Girard Street Alley, square 2596.	North side East Capitol Street, between Thirteenth and Fourteenth Streets. 1324-1346, inclusive, East Capitol Street.		Alley square 2617. Alley, square 2862. Alley, square 2862. Alley, square 1045. Alley, square 705

TABLE K.—Assessment work, 1915—Continued.

					Curb set—		Virrified	Asrohalt	2		
Location.	Grading.	Cement sidewalk.	curb reset.	6 by 20 inches.	8 by 8 inches.	Old.	block paved.	block payed.	paved.	block,	Cost,
Allay sortion 2808	Cu. yds.	Sq. yds.	Lin.ft.				Sq. yds.	8q. yds.	Sq. yds.	Sq. yds.	\$455.81
Alley, south half square 1031	160						550.00	145			1,329.85
Alley, square 1017.	006						2,260.00		064		4,951,18
Alley, square 3049.	200			28.26			782.00	309	001		2,660,49
Andy Square 340. East side Fourteenth Street NW., from Q Street south		310.28	1			16.00	1,000.00				379.52
North side D Street NW., from Seventh Street to alley  Both sides Eighth Street SW., from B to C Street.		792.74	754.60	103.00		43.00					1,116,96
North Salve Fennsylvania Avenue, non Filmont (Arch to north Railyaad Avenue, and south side Fennsylvania Avenue from courth Railyaad Avenue to Liferiant	1										
Avenue, non south ramon Avenue to Leman.	82	480.18						***************************************			632, 21
aurond Avenue, horen rom rennsylvania Avenue, lots 3 and 4.	9	64.13				***************************************					81.57
North side Park Place SE., from Twenty-third Street east		99.40						-		***************************************	121.06
	***************************************	362, 33				-				·	443,73
		410.73	***************************************			***************************************	***************************************	***************************************			500.27
	*********	406.79	**********	***********		***************************************					497.04
North side Hamin Street NE., from Twelfth to Thir- teenth Street.		416.01					***************************************		**********	***************************************	508.27
ast side New Hampshire Avenue, from Taylor Street north to walk, and north side Taylor Street, east to alley.	184	239.67			***************************************			-			302, 61
Both sides I Street NE., between Sixth and Seventh Streets.	***************************************	1,155,91	1,099.79	16.85			*************************		***************************************		1,533.82
East side First Street NE., from H to K Street		541.60	162.00								580.04
Eighth Street NE., between G and H Streets	*********	456, 14		-				-			464.50
Streets Colonello America and Posterior Characteristics		570.0M	15.75	495.02	*********			***************************************	***************************************		1,226.37
Ingraham to Longfellow Streets	Constant of	961.80					***********	***************************************	***************************************		1,179.35
te Fourteenth Street N.W., between Ingraham		ONR EA					1			1000	336, 56

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								:																						
							1,000	670	612	:			<u> </u>					:		522	1,288				:	:			83	
							800	215.00	3	88	3		<b>30</b> .00		:		į	17.08	812.00	125.00	0.00		<u>:</u> :	000	3				1,146.00	1914.
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TABLE K - Assessment work, 1915 Commission.

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## Street (minor repairs)  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00  1,346.00	Intersection Fifth and I. Streets and New York Avenue NW.	88				3				8	
New York Avenue to Fourth Street.  1,804 42,43 42,43 42,43 43,43 44,44 45,43 45,43 46,44 46,44 47,44 48,44 48,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 49,44 4	Intersection New 1 ork and New Jersey A venues and M Sureet.  North side B Street NW, from Twelfth to Fourteenth Street.	1,346.00			8				18	1,612.98	
9, 40, 42, 43.	South side Florida Avenue from New York Avenue to Fourth Street North Carolina Avenue between Flith and Stxth and C Street between Fou	<u>:</u>	1,88				\$		:	8 i	
Pairs).  youts).  youts).  youts).  youts).  youts).  youts).  youts).  xteenth Street (minor repairs).  3,217.11 2,583 218.66 30 983 1,076 60.50 118 77	and Sixth, Reservations 39, 40, 42, 43.  Northwest section east of Sixteenth Street.	31.05	<b>674</b>			875				461.62	
National Parties (minor repairs)	Southwest section (minor repairs). Northeast section (minor repairs).	4.5								25. 25. 25. 25. 25. 25. 25. 25. 25. 25.	
Total. 2,533 213.15 3,533 213.58 30 983 1,076 60.50 18 7,	repairs).									194.35 194.33 19.33	
	Total	<u>'                                    </u>	2,533		8	88			18	7,031.21	

TABLE M.—Miscellaneous work, 1916.

	Cost.	\$334. 43	1,811.26	1,910.53	1,007.96	988,31	1,170.03	1,770.49	686.24	91, 12	2, 661. 44	2, 801. 84	1,509,96	3, 550.85	742.04
1	Description.			***************************************							Spreading stone	do			
Gran-	block relaid.	Sq. yds.	-	-					450						********
Asphalt	block relaid.	Sq. yda.				-	***************************************		110	06					
Vitri	block relaid.	Sq. yds. Sq. yds. Sq. yds		***************************************					150					*********	
Cement	curb set.	Lin. ft.	-			1,775.55	1,949,82			-				***************************************	
set.	8 by 8 inches.		1,448.26	1,541.05	827.72	47.33	167.03	1,434.00	-				1,234.60	2,714.02	96,809
Curb set.	6 by 20 inches.	257. 63					***************************************	-	-	i					
Curry		Lin. ft.		***************************************	-				-	*******					
Brick	walk relaid.	Cu. yde. Sq. yds. Lin. ft.		*******		***************************************			2,000	200		-	:		***************************************
Great	ing.	Cu. yda.	********	Section .							-			********	
	Appropriation.	Construction of suburban roads and streets.	do	Georgetown schedule	Construction of suburban roads and streets.	do	do	Georgetown schedule	Southwest schedule	Southeast schedule	Construction of suburban roads and streets.		Southwest schedule	do	Construction of suburban roads.
	Location.	South side Harvard Street from Fifteenth to Sixteenth	Street. Both sides Nineteenth Street N.W. from Kalorama Road	to Biltmore Street. Both sides Wisconsin Avenue from Thirty-fourth to Thir-	ty-fifth Street.  Both sides Allison Street N.W. from Kansas Avenue	Both sides Jefferson Street. NW. between Seventh and	Ninth Streets. Both sides Harrison Street. N.W. hetween Relt Road	and Wisconsin Avenue. Wisconsin Avenue NW. be-	Streets. K Street SW. between Four- and-a-half and Eighth	Streets. Potomac Street SE, between	Harrison Street NW., Belt Road to Wisconsin Avenue.	Road to Forty - second	Both sides Howison Place	Both sides K Street SW. from Four-and-a-half Street to	Both sides Eighth Street NW. Webster to Allison
45	No.	3077	8028	3080	3106	3110	3111	3171	1603	1805		5151	3043	3044	3107

8.8	54.41	1, 573. 39 2, 012. 33	556, 51 122, 14	55. 25 5	83 E	54.67 88.67	176.35	316.94	717.82	196.35	6, 460. 60	8.14 88	426.78	519. 50 13.00	8,40	8	91.12	9	<b>3</b>
Erecting booth for in-	spector. Marking lines for traffic	Repairing entrances Furnishing curb	·		Repairing roadway	Digging pit. Erecting fence			Spreading and rolling macadam.	ф.	do.	Painting flagpoles Repairing cribbing	Furn'shing curb	Paving tree spaces Marking public space	for automobiles. Rolling grounds				
	:							:			i								
					2												8		
			<b>3</b>				28	i											
	:							i			i		i						<u> </u>
, 0000 t	<u>:</u>			<u>:</u>			<del>- i</del>	- :	÷	<del>-</del>	+		<u> </u>						<u>:</u> -
1	<u>:</u>	<u> </u>		-					-	<u>:</u>	+	<u> </u>	<u>:</u>		_				<u>:</u>
		::	<b>2</b>	-				+		<u>:</u>	<u>:</u>				_				<u>:</u>
				<u> </u>				 99	+	<u>:</u>	÷	<u> </u>	<u>:</u>				â	Ę.	<u>:</u> 3
		<u> </u>	97.6	8	<b>8</b>		<del>-</del>	<del>-</del> -	<u> </u>	<u>:</u>	$\frac{1}{1}$		<u>:</u>		_	<u>.</u>			` : <del>-</del>
3 3		ii.	i	A		-11	- 1	1	:	1	1	11		11					
O Street Bridge	Metropolitan police de-	Pire department. Superintendent of Build- ings and Grounds, Cap-	Soldiers' Home	Elimination of grade cross- ings.	Farmers' produce market Elimination of grade cross-	ings. Health departmentdo.	Agricultural department.	Southeast schedule	Construction of suburban roads.	ф	do	Improvement of plaza	Buildings and grounds,	Parking commission Metropolitan police de-	partment.	Southeast schodula	do.	4	
North side Taylor Street. NW. New Hampshire Avenue to Seventh Street.	Various streets	Various engine houses	U. S. Soldiers' Home grounds Marine Barracks	Colfax Street NE. north from L Street.	Farmers' market, Twelfth and B Streets NW. North and south 15-foot allev.	Square 628.  Twentieth and C Streets NE.  Lots 27, 28, 29, alley, Square	North side B Street SW. at	New Jersey Avenue SE. be-	Forty-first Street N W., Ingo- mar to Harrison Street.	Harrison Street NW., Belt	Hunt Place, Deane Avenue,	Union Station Plaza E Street NE. between Sec-	drives at	Various streetsdo.	n.	Kenyon Streets, Georgia and Sherman Avenues.	Eighteenth Street.	tween Eighth and Ninth Streets.	
8113	2100	220	9062	8008	8 8	96	7908	1807	1909	2083	1119	200	8908	88 88	9908	itizod	1806	30	i ogl

TABLE M.—Miscellaneous work, 1915—Continued.

	Cost.	\$868.00	357.52	169,35	346.65	311.45	339, 75	621.21	224.25	1,056.84	588, 62	3,246.85	868.00	14.00	2,801.44	123,18	638. 18
C. Sandardan	Description.	Graveling and bire of steam roller.	фо	do,	do	do	do		***************************************	Spreading stone	Grading	Spreading and rolling stone.	Graveling	Repairing roadway	Grading and spreading stone.	Shaping roadway	Spreading stone
Gran-	block relaid.	Sq. yds.		********		*********		120		********				1			
Asphalt	block relaid.	Sq. yds. Sq. yds.			**********		***************************************		***********	*******	-		***************************************	-			-
Vitri-	block relaid.	Sq. yds.		1000	*********				*******			-	********		-		
Cement	eurb set.	Lin. ft.	**********		***************************************		-			*********				*********			
set.	8 by 8 inches.											***************************************		***************************************		********	********
Curb set.	6 by 20 inches.		-			***************************************										-	- copper
Curb		Lin. ft.		*****	***************************************	***************************************				***************************************		-					***************************************
Brick	walk relaid.	Sq. yds.	***************************************					2,800						-	1		
Grad	ing	Cu. yds. Sq. yds.		********	******		***************************************		1,500	*******		-	***************************************		:	-	
	Appropriation.	Construction of suburban roads and streets.	do,	do	do	do	do	P Street NW. between Rock Creek and Twen- ty-eighth Street.	Southwest schedule	Construction of suburban	do	do	фр	do	do	фо	do
	Location.	Fifth Street SE., Alabama Avenue to Savannal, and Savannah Street, Fourth	Fourth Street SE., Nichols	Highview Place SE., Nichols	Randle Place Sf., Alabama	Sixth Street SE., Alabama	Waclark Street SE., Nichols	P Street NW. between Rock Creek and Twenty-eighth Street.	N Street SW. between First and Second Streets	Allison Street NW., Eighth	Dix Street between Sixty-second and Sixty-third	Streets. Davenport Street NW., Wisconsin Avenue to Howard	Fifth Street SE., Alabama	Irving Street NW., Georgia	Minnesota Avenue, Benning Road to Forty - second	Otis Street NE. between	Taylor Street NW., New
4	o No	5041	2021	5101	1619	5221	5271		1604	2001	5012	5021	2041	5121	2121	1819	5241

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TABLE N.—Whole-cost work, 1915.

Cost.	\$40.00	1,921.83	3,371.71	138, 40	326.09 68.74 278.41	6.00	6.74	1,451.76	7.50	6.30 222.30	125.33	96, 50	15,24	982, 03
Description.		Repairing between	Stone and oiling Grading and widen- ing roadway.		Oil and stone chips	Widening roadway	***************************************	Constructing walks	9 square yards asphalt	Grade and lower curb.	404.30 linear feet ce- ment gutter.	311.30 linear feet co- ment gutter.		Telefaction of the second
Curb set, 12 by 14 special.				********	513.50		***************************************				***************************************		-	********
Cement gutter laid.	Lin. ft.			425.20			Section 5						********	
Vitri- fied blocks drive- way.	16.5	-	1	********							4			42.0
Curb set, 6 by 20 inches.				***************************************			***************************************				********		9, 42	
Curb reset.	Lin. ft.	1		********			***************************************		*******	87.00	***************************************		6.32	480.00
Brick side- walks relaid.	Sq. yds.			*******			********		*******		***************************************			300
Cement side- walks laid.	Sq. yds. Sq. yds. Lin.ft.			1	68.20	4.00	5.00						-	******
Grad- ing.	Cu. yds.			*******			*	-	1					
For whom done,	C. E. Charlton	Capital Traction Co	Geo. A. W. Dodge Washington Railway & Elec- tric Co.	Kennedy Bros. (Inc.)	Geo. A. W. Dodge. John C. Walker. Noreross Bros. Co.	E. S. Marlow Louis H. Balley Capital Traction Co.	Wm. I. Hayes	Tuberculosis Hospital	Jos. C. Sheehy	E. L. Johnson. Philadelphia, Baltimore & Weshington Bellicad Co.	Kennedy Bros	do	Wm. A. Winsutt	Columbia Granite & Dredg-
Lecation.	Sherman Avenue NW., between	Connecticut Avenue NW., between Newark and Tilden Streets.	Streets in Massachusetts Avenue Heights. Yorth side Massachusetts Avenue, be- tween Macount Street and Nebruska	Avenue. North side Quebec Street, from War-	der Street to east une for 1:9.  Massachusetts Avenue Heights 7 Dupont Circle. Southeast corner Sixteenth and S	Streets N W. Front 1216 Delafield Place NW. 2547 Phirty-seventh Street NW. M Street SE., between Seventh and	Fighth Streets. F Street NE., from Fourteenth to Fif-	Tuberculosis Hospital	3810 Jenifer Street, Chevy Chase	Entrance to alley, square 1733 Intersection First and B Streets SE,	South side of Quebec Street NW., from Warder Street to east line lot	te Princeton Street, from . Street to alley, and west	Eighth Street SW., between B and C	South side of K Street NW., between
Job No.	1009	8009	6009	8109	6023 6024 6032	6036 6057 6038	1809	0909	6909	6061	1909	2909	9909	6003

877. 91	8.	1, 606. 92	47.30	32.00	650.00	95.34	13, 463. 31
Repairing and oiling streets.		Relocate the roadway. 1,606.92	Laid 350 linear feet	Macadam	Surface between tracks.	Paving space at cross-ings.	
		:					513. 50
							425.20
		:	:				300 483.32 9.42 58.5 425.20 513.50
			:	:			9.43
		-	:				483.32
		:	i	•			
<u> </u>	8		i				55 85.53
<u> </u>			8		:		23
Geo. A. W. Dodge	Washington & Maryland Refleray Co.	Kennedy Bros.	Geo. Y. Worthington & Son.	Avenue and Washington Rallway & Elec-	Ö	Zoo anddodo	
6075   Massachusetta Avenue Heights   Geo. A. W. Dodge	6076 Colors to Avenue and Kennedy Street Washington & Maryland 8.33	Street NW., from Eighteenth	side Irving Street NW., between	ection of Nichols Avenue and	between	6074 Connecticut Avenue, near Zoo and near Newark Street.	Total

TABLE O .- Number of square yards and cost of repairs to cuts in streets, avenues, and alleys during the fiscal year ended June 30, 1915.

Item No. 1 shows the number of square yards and cost of repairs to cuts made by various plumbers and corporations at flat rates.

Item No. 2 shows the number of square yards and the cost thereof on "whole-cost" work, to which 5 per cent is added for tools, clerk hire, etc., for the maintenance of the miscellaneous trust-fund deposits (District of Columbia), operating account, streets, which fund is used to pay all accounts for labor, mainrial, tools, etc., used in connection with this class of work.

Item No. 3 shows the number of square yards and cost of work done on account of the sewer department. Item No. 4 shows the number of square yards and cost of work done on account of the water department of tem No. 5 shows the number of square yards and cost of work done on account of the water department of the District of Columbia; also the cost of work against retents and appropriations of the General Government. ernment.

	Square yards.	Cost (amount charged).
Item No. 1 (plumbers and corporations cuts at flat rate): Sheet asphalt. Granite block. Asphalt block. Vitrified block and brick. Cobble and rubble. Macadam. Granolithic walks. Bricks idewalks. Bricks furnished. Asphalt blocks furnished. Vitrified blocks furnished. Plumbers cuts in macadam roadways repaired at actual cost plus 5 per cent.	761.80 1,624.43 17,301.53 1,612.16 5,405.00	\$5, 811. 04 1, 255. 84 2, 393. 01 1, 937. 41 457. 08 1, 949. 22 28, 322. 30 725. 07 54. 05 254. 73 237. 74
Item No. 2: Various corporations and individual depositors.  Item No. 3: Various appropriations of the sewer department.  Item No. 4: Various appropriations of the water department.  Item No. 5: Various appropriations other than the above, including repairs to roads, streets, electrical department, improvements and repairs, assessment and permit work, parking commission, etc.	35, 893. 04 41, 774. 87 7, 289. 98 5, 628. 30 5, 742. 17 96, 328. 36	42, 264. 37 57, 061. 53 13, 260. 73 12, 564. 38 15, 706. 07 141, 947. 06

<sup>1</sup> Included in macadam cuts.

Total number of charges made for repairing cuts of all kinds, 11,355.

TABLE P.—Grading streets, alleys, roads, 1915.

Job No.	Location.	Grading.	Cost.
_		Cubic yards.	
1900	Alley parallel to Connecticut Avenue, square 1859.	68	\$34.00
1901	Lawrence Street NE., between Fourteenth and Fifteenth Streets	2,500	1, 193. 🕏
1902	West side Forty-first Street NW., between Davenport and Ellicott Place.	92	46.20
1905	Monroe Street NE., between Hoover Road and Twenty-eighth Street		111.75
1906	North and south alley, square 1859	622	<b>266</b> . 87
1909	North and south alley, square 1859  Macomb Street NW., about 150 feet west of Twenty-eighth Street	135	51. 🛱
1912	Intersection of Forty-mist and Garrison Streets	1 19U J	52.26
1921	Carrolburg Place SW., between O and P Streets; Hay Street SW., be-		
	tween O and P Streets; O Street SW., between Half and First Streets.	1,200	250.00
1924	West, north, and south alleys, square 1859.	200	92. 25
1925	Fifty-third Street NE., between Foote and Dix Streets, and Dix Street,		
1000	between Fifty-third and Division Avenue	1,100	336.38
1928	Broad Branch Road, between Morrison and McKinley Streets	600 420	368.88
1930	Lawrence Street NE., between Thirteenth and Fourteenth Streets	420	169. 44
1907 1926	Florida Avenue NE., from Bridge to Fourth Streets	2,311 240	808.88
1927	Brentwood Road, from Eastern to Central Avenue.	840	43.87 134.00
1931	Hobart Place NW., west of Virginia Avenue	1,918	
1943	Beck Street, between Southern Avenue and Bowen Road	1,5%	1,534.99 38.60
1929	Alley in south half square 1856.		19.25
1938	Railroad Avenue.	401	100.75
1939	Upshur Street NW., from Rock Creek Church Road to grounds of U. S.		100.19
1000			295, 18
1941	Soldiers' Home. V Street NE., between Second and Third Streets	2,105	842.35
1945			61.75
1960	Sixteenth and E Streets, and east of Sixteenth Street NE	98	24, 75
1955			186, 50

TABLE P.—Grading streets, alleys, roads, 1915—Continued.

Job No.	Location.	Grading.	Cost.
1944 1948 1967 1968 1969 1962 1922 1923 1911 1913 1914 1915	Second Street NE., between V and Rhode Island Avenue South Dekots Avenue NE., between Cariton Avenue and Vista Street Alley, square 3138. Tempson Street, between Thirty-third and Western Avenue Farragut Street NW., west of Georgia Avenue to Thirteenth Street. West side Fourteenth-and-a-half Street NE., between C and D Streets. North and south alley, square 1633. Fourteenth-and-a-half Street NE., between North Carolina Avenue and C Streets. Northwest section, east of Sixteenth Street.	709 125 100 128 112 1,045 60 2,440 575 125 500	\$578. 45 212. 75 36. 00 28. 25 31. 50 28. 00 511. 25 25. 00 1, 688. 828. 75 58. 25 225. 25
	Total		10,882.77

## REPORT OF THE SUPERINTENDENT OF STREET CLEANING.

WASHINGTON, D. C., September 1, 1915.

SIR: I have the honor to submit the following report of the street cleaning division of the engineer department of the District of Columbia for the fiscal year ending June 30, 1915:

CONTRACT WORK.

Throughout the year the following work has been done by contract under the direction of this division:

Garbage.—The collection and disposal of garbage daily, including Sundays, from such hotels, apartment houses, markets, and other like places within the city of Washington and such of its suburban sections as may be designated, from time to time, by the Commissioners of the District of Columbia.

The collection and disposal of garbage daily, excluding Sundays, from May 16 to October 15, both days inclusive, and three times a week from October 16 to May 15, both days inclusive, from all places not embraced in the preceding paragraph within the existing fire limits of the District of Columbia and certain of the more thickly normalized sections on the outside of and adjacent to the first limits.

populated sections on the outside of and adjacent to the fire limits.

The collection and disposal of garbage three times a week from May 16 to October 15, both days inclusive, and semiweekly from October 16 to May 15, both days inclusive, from all places not included in the preceding paragraphs in the city of Washington and its suburbs, as such suburbs may from time to time be designated by the Commissioners of the District of Columbia.

The collection of garbage is made in wagons carrying a covered iron box which is lifted from the wagons and loaded on cars at the transfer station. This box, containing the garbage, is then shipped by rail to the disposal plant owned by the contractor, located about 32 miles from Washington, and the garbage is there disposed of by the

reduction process.

Askes.—The collection and disposal of askes within the existing fire limits of the District of Columbia and certain of the more thickly populated sections outside of and adjacent to the fire limits, weekly from April 16 to October 31, inclusive, and semiweekly from November 1 to April 15, inclusive, from private residences, boarding houses, lodging houses of not to exceed 25 rooms, and apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia.

The collection and disposal of ashes from all private residences and such other like places corresponding to those included in the preceding paragraph from the remainder of the city of Washington and its suburban sections, as said suburban sections may from time to time be designated by the Commissioners of the District of Columbia, weekly throughout the entire year.

The collections are made in wagons with canvas covers and disposed of by filling

low ground on the outskirts of the city.

Refuse.—The collection and disposal of miscellaneous refuse, in the city of Washington and its more densely populated suburbs, as such suburbs may from time to time be designated by the Commissioners of the District of Columbia, once a week from all private residences, boarding houses, and lodging houses with not to exceed

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25 rooms, and apartment houses containing not to exceed four families, and other like places, as may be designated by the Commissioners of the District of Columbia, and from such public waste boxes as may be established by the street-cleaning division in the machine-swept section of the city and District.

The collections are made in wagons suitable for this purpose and what is not salable

is disposed of at an incinerating plant owned by the contractor.

Dead animals.—The collection and disposal of dead animals daily, including Sundays, throughout the year, from every part of the District of Columbia upon notifica-tion to the contractor of the existence of said dead animals.

The collections are made in vehicles suitable for the purpose, and the disposal is accomplished by the reduction process at a plant owned by the contractor, located

about 4 miles from the city.

Night soil.—The collection and disposal of night soil from all privies and from all streets, avenues, alleys, roads, and open lots in the District of Columbia upon receipt of notice from the superintendent of street cleaning.

The collections are made in air-tight receptacles designed for that purpose and transported therein on barges about eight miles from the city and there used as fer-

tilizer on a farm

Ashes from public buildings.—The collection and disposal of ashes and refuse from buildings under the control of the Commissioners of the District of Columbia as such

may accumulate.

This work is done by contract under the direction of this division, but paid for from the appropriation for the maintenance of each building in proportion to the quantity removed.

#### MUNICIPAL WORK.

During the year the following work was done under the immediate direction of this

Machine cleaning.—The cleaning of all paved streets outside the hand-patrol area every day, every other day, or every third day, depending on the location and traffic At the beginning of the year the territory under attention amounted to 1,603,000 square yards. During the year newly paved streets were added and transfers made to hand-patrol work so that the territory under attention on July 1, 1915, was 1,552,179 square yards, but that part receiving daily sweeping has been increased. The force employed on this work consisted of two gangs, the first having 2 sprinklers, 6 machines, 7 carts, and 8 broomers, and the other, 1 sprinkler, 3 machines, 4 carts, and 4 broomers.

Alley cleaning.—The cleaning of all paved alleys in the District of Columbia about once every week. On July 1, 1914, the area cleaned amounted to 1,079,959 square yards. New alleys paved during the year increased this area to 1,090,252 square This work was done by two gangs each consisting of a one-horse sprinkler, a one-horse machine broom, 3 to 4 carts, and 6 broomers; and 1 gang of a 1-horse sprinkler,

3 carts, and 5 broomers, this gang being used in alleys too narrow for the machine-broom.

Suburban cleaning.—The cleaning of macadam, gravel, and unpaved streets not taken care of by the superintendent of county roads, and unpaved alleys in the more thickly populated suburban sections about once every 10 days. Additional territory was transferred during the year from that taken care of by the division of county roads, increasing the area from 1,514,180 square yards to 1,525,043 square yards, the alleys under attention increasing from 55,200 square yards to 67,577. From July 1 to October 15 this territory was taken care of by one gang consisting of 7 carts and 18 broomers. From October 10 to June 16, 2 gangs; one of 4 carts and 10 broomers and the other of 4 carts and 8 broomers were employed, and after June 16 the number of laborers was increased to 12 and 10, respectively.

Hand patrol.—The daily cleaning of streets in the central portions of the city. area of the streets cleaned was about 3,524,700 square yards at the beginning and about 3,666,400 square yeards at the end of the year, the increase being due to the addition of newly paved streets and transfers from the machine cleaning. Approximately 265 men divided into six gangs are employed daily and the dirt gathered by 14 two-horse wagons, this being an increase in the working force of 5 men and a decrease of 2 two-

horse wagons over that employed at the beginning of the year.

Flushing.—The flushing of cobblestone, granite, asphalt block, and poorly paved streets in the hand-patrol section of the city, amounting to 372,272 square yards. Due to poorly paved streets having been repaved during the year and transferred to squeegee cleaning, this is a decrease of 1,778 square yards from the territory under attention July 1, 1914. A battery of three pneumatic flushing machines covers this territory about once in three days, the hand patrol removing the dirt from the gutters.

Squeegeeing.—The squeegeeing of nearly all the smoothly paved streets in the handpatrol area two or three times each week, the territory under attention amounting to

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2,149,703 square yards. This is an increase of 294,703 square yards over that squeegeed at the beginning of the year. During the winter months, two gangs comprising 2 sprinklers, and 8 squeegees, were operated whenever the weather permitted, each street being washed about every three days. During the summer months, three gangs consisting of 3 sprinklers and 12 squeegees, 4 squeegee machines working on two shifts, were employed, each street being washed about every two days.

The object of this frequent washing is to remove fine dust and the scum which makes the pavements very slippery when slightly wet. No washing is done except on streets

in the hand-patrol section and all dirt is removed by the hand-patrol forces.

Dust prevention.—The coating of practically all the better class of unpaved suburban streets with emulsion road oil, the entire territory being covered about 10 times. The territory under attention amounted to 938,492 square yards at the end of the year, an increase of 74,222 square yards over that under attention July 1, 1914. The force employed varied from two spreader wagons and three supply wagons to one spreader wagon and two supply wagons, being lessened as the streets became better saturated. The sprinkling of the remainder of the unpaved suburban streets about twice every

The sprinkling of the remainder of the unpaved suburban streets about twice every day, the territory under attention amounting to approximately 140,400 square yards. The force employed on this work varied from three to four sprinklers, depending on

the season of the year and weather conditions.

#### GENERAL.

The division of street cleaning serves a population of about 353,297 and covers an area of approximately 70 square miles. The appropriation for dust prevention, cleaning, and snow removal totaled \$270,000, an increase of \$10,000 over the amount

allotted by Congress during the previous fiscal year.

A change in hand-patrol methods was introduced during the past year. Under the old system, a type of bag carrier was employed on which was carried one bag in process of being filled and a number of empty bags. These bags when filled were left on the sidewalks, tree spaces, or other convenient locations, from which they were collected in wagons two or three times per day. This system was objectionable not only on account of the unsightliness but it provided breeding places for flies and created objectionable odors along the streets and was a constant and reasonable source of complaint from business houses, residents, and pedestrians.

With the new type of bag carrier, the bags are held open ready for filling in a covered sheet-iron box. When the sacks are filled, they are taken immediately to transfer stations which have been established in the interior of certain squares and there left for removal by wagons, the collector obtaining empty bags at the same station. This keeps all bags off the streets and does away with the unsightliness of the old carrier. In addition, the hauling time is less, as the wagons have but a few fixed points to visit instead of collecting along both sides of every street throughout the entire section, and it has been possible to reduce the number of collecting vehicles from four to two. It was necessary to cut down the territory per man slightly because of this change, but the cost of the additional men is offset by the saving in collection equipment, the unit costs being about the same as under the old system.

During the winter months just past there was very little snow and but \$3,540.68 was spent on snow work. The regular street-cleaning work, however, was increased by the mild winter, the number of days worked, the yardage cleaned, and the expendi-

tures all being above normal.

During the year three new squeegee machines were purchased; partly to increase the washing work and partly as a reserve in case of breakdowns which become more frequent, as the present equipment has had hard service and is wearing out. It will be necessary to make extensive additions to this class of equipment within the next year or two, and it is particularly desired that motor equipment be purchased to make the replacements. Permission has been requested for several years past to buy such apparatus. Motor washing machines are now a part of the regular equipment of a number of cities and show economical operation as compared with horse-drawn apparatus. In addition to the greater speed at which the machines can be operated, there is a particular advantage that during the winter months when no washing can be done only overhead charges on such apparatus must be paid. With horse-drawn equipment there is considerable expense due to feeding idle horses, about 40 of our horses being detailed for washing work and remaining idle whenever such work can not be done.

The use of motor vehicles for inspection also shows considerable economy over inspection with bicycle or horse and buggy. The assistant superintendent and chief inspector each cover about 1,000 miles per month and the work shows the benefits of such supervision. The hand-patrol foremen having motor cycles are assigned such large territories that it would be impossible to cover them in any other way, and if

motor cycles were not available additional foremen would have to be assigned to hand-

patrol work.

A change in the policy for dust prevention was effected during the year. Previously, practically all suburban streets were oiled, but it was found that certain streets did not respond to such treatment, the oiling having little beneficial effect. The schedules were accordingly gone over and all such streets transferred to a sprinkling schedule, which treatment kept them in better condition, at less expense, than when ciled. Sprinkling on oil streets was also practiced in the spring before the oiling season commenced and during dry and warm spells in the late fall and winter. Such sprinkling practically eliminated all complaints from dust during the winter months.

The tables which follow show a decided increase, for all but machine-broom cleaning, in yardage cleaned. The expenditures, for all but machine-broom work and flushing, are likewise above last year, but the unit costs, without exception, are lower. This is partly due to weather conditions, which permitted an extra amount of cleaning, but also to the attention given the work by the various foremen. The decided drop in the cost of flushing is almost entirely due to cutting down the time of loading. These machines are charged about 70 times per day, so that the time of loading represents a considerable portion of the day's work, each charge amounting to about 700

gallons.

The inspectors of the collection and disposal of city wastes made investigations during the year of complaints and requests in number as follows: Garbage, 722; ashes, 1,527; refuse, 1,878. This is a considerable reduction over previous years in the number of complaints. Of the total garbage complaints, 51, or 9 per cent, were found on investigation to be the fault of the contractor; 214, or 38 per cent, were caused by the householders failing to comply with the police regulations regarding the collection of garbage; while in 291 cases, or 53 per cent, the fault could not be definitely placed. In the case of ashes, 173, or 15 per cent, were found on investigation to be the fault of the contractor; 463, or 42 per cent, were caused by failure of the householders to comply with regulations governing the collection of ashes; and in 476 cases, or 43 per cent, the fault could not be definitely ascertained. The refuse service, while still leading in the number of complaints, shows a reduction as compared with last year of over a thousand. Of the total complaints, 337, or 22 per cent, were found to be the fault of the contractor as compared with 608, or 24 per cent, last year. The number charged to the householders for improper observance of the police regulations was 640, or 41 per cent, as compared with 833, or 33 per cent, for last year. The balance of 585 cases, or 37 per cent, were classed as "doubtful." This is comparable with 1,056, or 43 per cent, for last year.

The reduction in the total number of complaints in the percentage of "doubtful" and "fault of contractor" indicates that a better service has been rendered, but the increase in the percentage charged to the householders for violations of the police regulations would seem to indicate that an insufficient amount of educational work had been done and that emphasis should be placed on the instruction to householders as to the requirements of the police regulations covering the removal of city wastes. The five men now employed in city waste inspection must spend practically all their time checking up the contractors and investigating complaints. The allotment of five men for this work was made a number of years ago, and meanwhile the city has grown to a considerable extent, thereby increasing the territory which they must cover. It is believed that the present force is inadequate, and the estimates for the

fiscal year 1917 have an item for a new inspector on this service.

The contracts for the collection and disposal of garbage, ashes, miscellaneous refuse, dead animals, and ashes and refuse from buildings under the control of the Commissioners of the District of Columbia all expired on June 30, 1915. New contracts were entered into as follows:

Contract for collection and disposal of—	Date.	Period.	Contractor.	Price per	Previous price per annum.
Garbage Miscellaneous refuse	Dec. 23, 1914	July 1, 1915, to June 30, 1918. do	Co. M. R. Ready	\$69,840 28,400	\$68, 409 17, 000
Ashes		July 1, 1915, to June 30, 1916.		69,000	73, 150
Dead animals	Nov. 24, 1914	July 1, 1915, to June 30, 1918.	C. F. Mann	2,988	2,855
Ashes and refuse, build- ings under control of commissioners.	May 18, 1915	July 1, 1915, to June 30, 1916.	J. W. Bean Contracting Co.	(1)	(4)

<sup>1 36</sup> cents per cubic yard.

The proposals for the first four of these contracts were issued on August 20, 1914, and bids were opened on October 15. The object of issuing these proposals so far in advance of starting the work was to afford an opportunity for the successful bidders to erect the necessary disposal plants. The difficulty with the disposal of city wastes is the elaborate and costly plants required, so that if contracts are let just prior to the date for commencing the work no time is afforded for the erection of disposal plants and competition is not obtained. In this case the old contractors were practically the only bidders, as the following list will show:

Bidders.	Garbage.	Refuse.	Ashes.	Dead animals.
Washington Fertilizer Co.:	. \$78,400			
3 years		•••••		
M. R. Ready:	1			
1 year		\$34,400 28,400		
5 years		23,900		
J. W. Bean Contracting Co.: 1 year			\$69,000	
8 years			72,500 74,990	
L. M. Johnston:			•	• • • • • • • • • • • • • • • • • • • •
1 year			81,000 77,500	
5 years			79,887	
Warner Stutler:	.]			
3 years			80,000	
5 years		•••••	78,000	• • • • • • • • • • • • • • • • • • • •
1 year				\$3,60 2,98
5 years				2,64
Moorman Drayage Co., 5 years		• • • • • • • • • • • • • • • • • • • •		2,90

The appropriations for the fiscal year 1915 included an item of \$7,500 for the purposes of investigating and reporting upon the collection and disposal of garbage and other city waste originating in the District of Columbia, including the preparation of plans and specifications for the construction of disposal plants, the necessary accessories, and the employment of personal services and such other incidental expenses as might be necessary to carry out the purposes of the appropriation. A contract was entered into on October 19, 1914, with Mr. Irwin S. Osborn, of Columbus, Ohio, to carry out the provisions of this appropriation. Mr. Osborn began work on this contract about December 1 and filed a preliminary report with the commissioners on June 30, 1915. Mr. Osborn's contract expired on June 30, but was extended to October 1 under commissioners' order of May 18, 1915, so as to afford opportunity for more complete time studies, analyses, etc.

Your attention is invited to the detailed information and statements of appropria-

tions and expenditures submitted herewith.

Very respectfully,

J. W. PAXTON, Superintendent of Street Cleaning.

Capt. W. D. A. Anderson,

Corps of Engineers, United States Army,

Assistant to the Engineer Commissioner, District of Columbia.

# Financial statement, street cleaning appropriations, fiscal year, 1915.

"Streets, District of Columbia, 1915, cleaning,	etc.'':		
Pay rolls—	<b>6</b> 117 750 00		
Hand cleaning			
Machine cleaning	16, 370. 57	,	
Alley cleaning	14, 512. 58 10, 773. 88		
Squeegee cleaning	5, 7 <b>4</b> 5. 75		
Flushing.	1, 286. 45		
Sprinkling	1, 425. 12		
Oiling	678. 88		
Dumpmen	2, 722. 50		
Office work	2, 230. 09		
Stables	13, 418. 10		
Repair shop	18, 030. 51		
Snow and ice	2, 072. 95		
Operating expenses—	000 00		
Office	208. 68		
Rent of storage rooms Livery, inspectors' horses	773. 50 850. 00		
Oil for roads	10, 836. 68		
Electric light and power	598. 14		
Repair material and supplies	15, 521. 48		
Forage	28, 927. 85		
Stable supplies	1, 699. 12		
Transferred to engineer stables	181. 62		
Repair work done—			
Water department	3. 38		
Surface division	63. 75		
Equipment	2, 964. 31		
Unexpended balance	2, 358. 56		
Total		\$272,004.81	
Repaid from other appropriations:		·	
"Contingent and miscellaneous ex-			
penses, District of Columbia, 1915,			
motor vehicles, maintenance, street	1 505 10		
cleaning allotment"	1, 707. 13		
"Streets, District of Columbia, 1915, disposal of city refuse"	7.88		
"Improvements and repairs, District	7.00		
of Columbia, 1915, repairs to county			
roads"	150. 46		
"Miscellaneous trust fund, District of			
Columbia, deposit of National Capi-			
tal Horse Show"	20.00		
From Washington Railway & Electric			
Co., oiling tracks	100. <b>4</b> 5		
From Washington Barracks, oiling	10 00	_	
road rear officers' quarters	18. 89		
Total amount repaid		\$2,004.81	
	-		
Amount of appropriation	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	\$270, 000.00
"Streets, District of Columbia, 1915, disposal of	city refuse ":	00 274 00	
Garbage		68, 374. 00 73, 041. 00	
Refuse.		16, 609. 00	
Night soil.		14, 996. 00	
Dead animals.		2, 855. 00	
Livery, inspectors' horses		740. 32	
Office expenses		95. 73	
Inspection		2, 742. 50	
Unexpended balance	•••••	491. 45	
Amount of appropriation	-		179, 945.00

"Contingent and misco motor vehicles, maint Supplies purchased Supplies from "Sto Labor	enance	s, stree	t clean	ing allo	tment	": <b>\$</b> 2 1	4, 1915 6, 631. 8 10. 7 7, 696. 4 1. 0	1 0 3	
Amount of appro "Contingent and misco contingent expense, a Office expense	treet c	leaning	allotm	ent":			a, 1915 441.8		340. <b>00</b>
New equipment Unexpended balance						• •	13. 5 244. 5	7	
Amount of appro "Salaries, offices, Distri Amount expended. Unexpended balan	ct of C	olumbi	a, 1915	":		41		0	700. 00
Amount of appro	priation	a	• • • • • •	•••••	••••			- . 41,	180. 00
Total amount of a	ppropi	riations		•••••	•••••	•••••	•••••	. 496,	165. 00
	<b>Mis</b> celle	aneous	data, st	reet-clea	ming u	ork.			
	Material removed. Estimated cubic y				yards of-	-		Esti-	
Class of work.	Wagon loads.	Cart loads.	Horse drop- pings.	Leaves.	Grass.	Dirt.	Trash.	Total.	mated tons.
Machine brooms	l	5.871	13,654 1,321 1,730 28,539	10,538 440 1,705 18,465	980 881 212 1,029	1,959 2,642 4,235 10,297	1,958 3,522 720 4,912	29, 089 8, 806 8, 602 63, 242	14,544 5,871 8,602 31,621
Total			45,244 41.3	31, 148 28. 4	3, 102 2. 8	19, 133 17. 4	11, 112 10. 1	109, 739 100. 0	60, 638
		Average	force pe	r workin	g day of	8 hours.		Days w	orked.
	Carts.	Wag- ons.	Sprink- lers.	Ma- chines.	Squee- gees.	Flush- ers.	Men.	Calen- dar.	Actual.
	ł	1							

Table showing comparative data in connection with street-cleaning work from 1911 to 1915.

SQUARE YARDS CLEANED.

	1911	1912	1913	1914	1915
Hand patrol. Nachine sweeping. Alley cleaning. Suburban streets. Squeegeeing. Finahing.	38, 396, 138 40, 194, 274	646, 377, 000 337, 990, 000 54, 664, 000 27, 825, 000 88, 328, 000 8, 747, 000	766, 918, 000 286, 067, 000 61, 354, 000 43, 596, 000 144, 629, 000 20, 703, 000	835, 588, 000 267, 557, 000 58, 671, 000 34, 296, 000 144, 878, 000 22, 424, 000	1,027,020,000 217,235,000 66,206,000 43,549,000 167,754,000 26,304,000

Table showing comparative data in connection with street-cleaning work from 1911 to 1915—Continued.

#### DIRECT TOTAL COST.

	1911	1912	1913	1914	1915
Hand patrol. Machine sweeping. Alley cleaning. Suburban streets. Squeegesing. Flushing.	\$94, 134. 48 83, 547. 67 15, 358. 44 17, 006. 26 5, 814. 57 1, 765. 12	\$98, 132. 85 54, 623. 72 17, 752. 45 14, 559. 76 9, 407. 58 2, 385. 84	\$117, 980. 15 46, 088. 96 19, 908. 48 18, 552. 80 17, 026. 64 5, 148. 78	\$116, 921. 65 41, 756. 07 19, 795. 31 13, 591. 99 17, 478. 55 5, 210. 98	\$136, 551. 95 \$2, 378. 12 21, 914. 70 14, 200. 23 19, 337. 40 5, 090. 20
C	OST PER 1,	000 SQUARE	YARDS.	· · · · · ·	
Hand patrol Machine sweeping Alley cleaning Squeegeeling Fiushing	\$0.1758 .2275 .40 .1162 .3157	\$0. 152 .162 .324 .096 .272	\$0.154 .161 .825 .117 .248	\$0.140 .156 .387 .121 .232	\$0, 122 .140 .311 .115
Norgs.—Changes and improved parison between the figures for diff Previous to 1912 the work of ma by contract.  The above costs include only lab and repairs to equipment.	erent years. chine sweepin	g, alley cleant	ng, and suburl	ban street clear	ting was done

Total cost of street cleaning, including all charges, except interest on investment and depre-

## Table showing comparative data in connection with disposal of all city wastes from 1911-1915.

# NUMBER OF UNITS COLLECTED.

	1911	1912	1913	1914	1915
Garbage tons. Ashes cubic yards. Miscellaneous refuse do Night soil. barrels. Dead animals number.	171,361 108,789 23,834	47,445 203,568 115,378 21,266 17,492	50, 778 200, 430 138, 382 19, 895 21, 287	48, 927 255, 358 140, 683 15, 514 19, 148	50, 806 148, 190 146, 152 12, 949 20, 570

## TOTAL NET COST.

	11.00   73,053.00	\$68,388.00 73,129.00 16,593.00 16,600.00 2,855.00	\$68, 384.00 73, 007.00 16, 583.50 14, 962.00 2, 853.00	\$68, 374.00 73, 041.00 16, 609.00 14, 996.00 2, 855.00
--	-------------------	----------------------------------------------------------------	---------------------------------------------------------------------	---------------------------------------------------------------------

### COST PER UNIT.

Garbage, per ton	. 42 . 14 . 68	\$1.44 .36 .14 .78 .168	\$1.34 .36 .12 .83 .134	\$1.30 .29 .12 .96 .149	\$1.34 .49 .11 1.16 .14

#### FINES DEDUCTED.

Note.—The reduction in cubic yards of ashes collected is due to the reports of previous years being in error. The amount collected during the past year is probably below average because of the mild winter, but checks on the amount reported collected by the contractor during the summer of 1914 prove that too large an amount had been reported. Digitized by GOOGLE

Specifications for the collection and disposal of ashes, garbage, dead animals, and miscellaneous refuse in the District of Columbia.

1. Definitions.—The term "garbage" wherever it occurs in these specification means all refuse of animal and vegetable matter which has been used as food for man (except oyster and clam shells from business places) and all refuse animal and vegetable matter which was intended to be so used, and includes food condemned by the health department. The term "dead animals" means all dead animals, or parts thereof, not intended to be used as food for man. The term "miscellaneous refuse" means all refuse from places of residence and business, except garbage, dead animals, night soil, and ashes. In addition to the ordinary household rubbish it will be held to include discarded Christmas trees and greens and small branches from shrubs or vines, but will not include any material whatever in the nature of earth or sand, wall paper, lumber, brick, stone, plaster, or other substance that may accumulate as the result of building operations or repairs to yards and buildings. Manure is not included under any of the above classes of material. The term "ashes" will be held to mean ashes from coal and other fuel, and will include such mineral substances as fallen plastering, etc., as may accumulate in connection with the ordinary conduct of dwellings and places of business, but not such as may accumulate as the result of building operations.

2. Hours of collection.—Garbage, miscellaneous refuse, and ashes must be collected between 7 o'clock a. m. and 6 o'clock p. m.; dead animals must be collected between 6 o'clock a. m. and 9 o'clock p. m. Special collections at other hours may be authorized by the commissioners, and may be required by them whenever in their judg-

ment they are necessary.

3. Receptacles.—Garbage intended for collection will be deposited by householders in water-tight covered vessels which can easily be handled by one man; sakes and miscellaneous refuse intended for collection will be deposited by householders in receptacles suitable for that purpose and which can easily be handled by one man. All receptacles aforesaid will be placed at points accessible to collectors. In the case of hotels, apartment houses, markets, etc., larger receptacles will be allowed under such restrictions as the commissioners may determine. In the event of dispute between citizen and contractor as to the point at which the garbage, ashes, or miscellaneous refuse shall be placed for collection the case shall be referred to the superintendent of street cleaning, whose decision shall be binding upon the contractor.

intendent of street cleaning, whose decision shall be binding upon the contractor.

4. Defining accessibility—Provisions for failure to remove.—The term "accessible to collectors" in the foregoing paragraph (No. 3) of these specifications shall be held to mean the placing of the receptacles by the householder inside of and near to the side or rear entrance of the premises (if collections are made from the side or rear) and in the areaway or other convenient place in front of said premises (if collections are made from the front), and the unfastening of the gate or other approach to the premises upon due warning by the collector by the free use of his horn, gong, or other signal. No receptacle will be allowed on the sidewalk, street, or public alley, and if the house or building has no yard or areaway large enough to hold the receptacles containing what accumulation is made between the regular collection days without unduly blocking the free passage through such areaway, collection must be made from within said house or building, provided entrance be afforded by a previously unlocked gate, door, or window. Nothing in these specifications shall be held to compel the contractor on his regular collection day to stop at any premises where the gate or other entrance thereto is found locked at the time of his arrival, nor to wait for said entrance to be opened, nor to notify the householders of his presence by any other means than the free use of his horn, gong, or other signal: Provided, however, That where, through failure by any cause of his own, the contractor does not remove as an example the collected the next succeeding day, if so desired, by the householder, from each and all of the premises neglected, whether the said material is made accessible or not in the meaning previously defined in this paragraph.

The fact that the contractor so removes the neglected material the day following the regular time of collection shall not be held to release him from liability for liquidated damages incurred by such neglect, except where the streets on the regular collection day are, in the opinion of the superintendent of street cleaning, in such con-

dition as to excuse such neglect.

5. Removal from street, etc.—Each contractor for the removal of any class of material named in paragraph 1 of these specifications, which is ordinarily kept in receptacles on the premises of the householder, must under such exceptional circumstances as in the opinion of the superintendent of street cleaning render it necessary, and upon his order, remove such material from any public street, avenue, alley, or road, or from any vacant lot, park, or uninclosed land.

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6. Mixed material.—The commissioners will enforce the separation by householders of each class of material named in paragraph 1 of these specifications, so far as may be practicable. But whenever, through neglect on the part of a householder or otherwise, two or more classes of such materials have been deposited in the same receptacle or place, the collection contractor affected, when such mixed material is refused by his collector, must notify the householder on whose premises the mixed material is found and request said householder to have such material separated in accordance with the police regulations of the District of Columbia; in the event of the house holder refusing so to do, the contractor must forthwith, in writing, notify the superintendent of street cleaning, giving the name and address of the householder. Whenever in his opinion it becomes necessary said superintendent shall determine by which contractor or contractors, if any, the material in question shall be collected and disposed of, and such contractor or contractors must collect and dispose of such

 Unlawful receptacles—Frozen material.—Lawful receptacles for ashes, garbage, and miscellaneous refuse will be found defined as to size and nature in the police regulations of the District of Columbia. No person shall deposit ashes for collection in any receptacle having a capacity of less than 5 nor more than 24 gallons. is found in unlawful receptacles the collector may refuse to collect the same, unless the use of such unlawful receptacles has been necessitated by the collection contractor's neglect (see par. 8) or authorized by the superintendent of street cleaning. but if such material is refused, the householder must be notified and the reason for such refusal must be explained to him by the contractor. If, upon the next regular collection day, lawful receptacles have not been provided, the contractor for collection must notify the superintendent of street cleaning forthwith, in writing, giving the name and address of the householder at fault.

The said police regulations instruct householders to keep garbage free from dishwater and as dry as practicable, to have both ash and garbage receptacles covered when awaiting collections so as to prevent animals from getting at their contents, we keep out rain, and to obviate freezing as far as possible. When garbage or ashes are found in frozen condition, the collector for such class of material shall not refuse to collect same without notification to the householder, and if said householder is willing that the collector shall attempt to loosen such frozen material and release the collector from any unavoidable damage done to the receptacle in such attempt, said collector must remove such frozen material. Where the householder is not willing  $\omega$ release the collector from unavoidable damage in loosening the contents of the receptacle, and the material is refused, the contractor for the collection of such material must notify the superintendent of street cleaning of such refusal forthwith, in writing, giving the name and address of the householder on whose premises the frozen material is found; provided, however, that nothing in this or the preceding paragraph shall be held to release the contractor or contractors for collection from liability for liquidated damages incurred by neglect where material has been refused from any cause whatever (except inaccessibility), unless such refusal is reported in writing forthwith

to the superintendent of street cleaning as herein provided for.

8. Accumulation.—Householders are required to provide sufficient receptacles for each class of material to contain all of such material accumulating on the premise. between the regular collection days. The contractor shall, on demand of the house holder or the superintendent of street cleaning, collect all of such material, whether the same be in lawful receptacles or not, whenever an accumulation results through his neglect, but he shall not be required to collect such material as may not be in

lawful receptacles and due to the neglect of the householder.

9. Receptacles, and damage to same.—The contractor for the collection of garbage must provide each of his collectors with a water-tight bucket, said bucket to be used wherever possible in the transfer of garbage from the householder's receptacles to the contractor's collection vehicle.

All receptacles, whether for ashes, garbage, or miscellaneous refuse, shall be replaced in the position where found by the collector, shall be handled carefully, and if damaged by the carelessness of the collector such damage shall be made good by the contractor for collection.

 Obstruction of streets, etc.—If any street, avenue, alley, or road be obstructed ∞ that vehicles used for the collection of any material mentioned in paragraph 1 of these specifications can not pass into, over, or through the same, the contractor for the collection of such material must cause it to be removed to collection vehicles on the street, avenues, alleys, or roads which are not obstructed.

11. Warning signal—Manner of collection.—The contractor for the collection of any material described in paragraph 1 of these specifications must see that each collector employed by him gives, in such manner as may be directed by the superintendent of street cleaning, timely notice to the householder of his approach so that the material may be collected without undue delay. The contractor must see that no collector employed by him picks or sorts over material collected, and that it is transferred from the receptacles of householders to the vehicles used for collection without unnecessary delay or exposure and without spilling. The contractor must see that each collector employed by him who opens a gate, door, or window leading to any premises properly

closes the same before departing.

12. Notices of collection days, etc.—The contractor for the collection of garbage or miscellaneous refuse and of ashes shall, at his own expense, issue cards, approved by the superintendent of street cleaning, stating the days for collecting such material in particular streets and districts, and designating as nearly as may be between what hours the collector will call in each locality; shall, before beginning work, cause one or more copies of such cards to be left at every building from which such material is to be collected; and whenever it is proposed to make any changes in the days or hours of collection, and prior to making such change, shall cause one or more copies of cards showing proposed time of collection to be left at each building affected by it.

The information as to collection days and hours required on the above cards must be supplemented by such quotations from the police regulations concerning the size and nature of receptacles, their accessibility, and the character of the separation of the various classes of material called for by such regulations as may be ordered in writing by the superintendent of street cleaning, and such other information as may

be desired by the contractor and approved by the superintendent.

Where collections are made semiweekly, at least two days must elapse between collections; where made three times a week, at least one day must elapse between

collections.

13. Collection districts and map.—The contractor for the collection of any material mentioned in paragraph 1 of these specifications shall, before commencing work, and thereafter at least two weeks before each change, if there be any, from summer to winter service, and vice versa, subdivide the entire area from which collections are to be made into collection districts of such size as, for the purposes of his contract, can be readily served under ordinary circumstances by one vehicle; shall assign to each collection district a number; shall furnish the superintendent of street cleaning with a map showing the boundaries of each district, the number assigned to it, and the collection days in it; and shall forthwith notify said superintendent in writing of any change in boundaries and numbers of such collection districts which may be made after such map has been furnished and incorporate such changes on said map.

If said map is not furnished nor said notification given as herein provided, the super-intendent of street cleaning shall withhold his certificate from the regular semimonthly pay voucher until such map or written notice is received by him.

14. Ownership of material.—If a single contract be awarded for the collection and

disposal of any material, all such material collected will be the property of the contractor from the time of its collection. If, however, separate contracts be awarded for the collection and for the disposal of any material the contractor for collection will have no ownership in the material collected except as may be necessary to enable him to transfer the same, but must deliver all such material, without alteration or diminution, except such as may result from the use of disinfectants and deodorizers, to the contractor for disposal. Such material will be the property of the contractor for the disposal thereof after it has been delivered to him by the contractor for collection.

15. Separate contracts for the collection and disposal and the transfer points.—If separate

contracts be awarded for the collection and for the disposal of any material, and it is desired by the latter contractor to dispose of any such material at some place not in or within convenient hauling distance from the city of Washington, and the commissioners consent thereto, the latter contractor must establish and maintain in or within convenient hauling distance from said city such station or stations as in the opinion of the commissioners may be necessary for the reception and transfer of the material collected or delivered there, which latter stations must not be located at any place nor reduced

in number nor changed in location without the consent of the commissioners.

16. Incombustible residue—Presenting mixed material.—Where a contract is let for the disposal of any material or materials by burning, the driver for the District or for the collection contractor or any other person delivering such material or materials must not be kept waiting to empty, or after emptying his vehicle, or for any purpose whatever. If the material so presented is in its nature incombustible, or if it leaves an incombustible residue after burning, such material or residue must be disposed of by the contrac-

tor for disposal in a manner satisfactory to the commissioners.

If, however, material presented to any contractor for disposal is found to be mixed with any other class of material to the extent of 5 per cent or more it may be refused by said contractor, if authorized so to do by the representative of the street-cleaning

department stationed at the place of reception, and the person delivering it may be required to separate said mixed material properly, or to remove it forthwith upon

failure to do so.

17. Dumps for ashes.—If a contract be made for the collection of ashes and authorizing their disposal on such public dumps as may be controlled from time to time by the commissioners, the contractor for such collection and disposal shall provide his own safeguards at such dumping places and shall take such precautions as may be necessary to prevent accident. The commissioners will assume no liability for accidents resulting through the contractor's use of said dumping places. tendent of street cleaning shall station at such places a representative who shall have general supervision and control over the points at which dumping must be done, the time of opening and closing said dump, the prevention of all fires on the dump, the trimming and handling of all material, the persons permitted on the dump, and shall determine the character of such material as is presented for disposal. Only clean ashes will be accepted at such dumps, and the representative of the superintendes of street cleaning shall be empowered to refuse all ashes mixed with other materials brought to the dump and to require such mixed material to be separated or to order it removed forthwith. The contractor shall be bound to conduct the dumping in accordance with the directions of the superintendent of street cleaning and the contracts must comply with such directions.

18. Time of disposal.—Garbage, dead animals, miscellaneous refuse, and asher must be within the digesting tanks or within the furnace or otherwise in process of actual disposal not later than 7 o'clock a. m. on the day following its delivery at the place of disposal. Such garbage and dead animals must be completely disposed of within 24 hours and all miscellaneous refuse and ashes within 72 hours after such delivery. The capacity of any plant or method established by any contractor must be sufficient to enable necessary repairs to be made without interfering with the work

of disposal.

Transportation.—Arrangements for transportation and the method of disposal must be such that regular daily disposal will not be interrupted by reason of (1) the obstruction of the Potomac River by ice or otherwise, (2) the effect of bad weather on roads, (3) inadequate railway facilities.

20. Lost articles.—Articles of special value found in the material or on the dead animals collected must be kept by the contractor for the disposal of such material or

dead animal in his office for a period of one year after the finding thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and as nearly as may be possible the place where found. A list of such articles shall be forwarded daily to the superintendent of street cleaning, describing each article found since the preceding report, and showing the collection district from which it came, the name of the finder. and such other information as may be of assistance in discovering the owner.

21. Plant.—Each contractor must establish and maintain without cost to the District of Columbia beyond the price stated in his proposal or proposals all such wharves. boats, cars, vehicles, buildings, furnaces, boilers, driers, presses, and other devices and apparatus as may be necessary to enable him to perform the work specified in his

contract or contracts.

22. Covered conveyances.—Material collected under these specifications must be transported by the contractor or contractors within the District of Columbia in covered

conveyances satisfactory to the commissioners.

23. Collection vehicles.—Vehicles used by the contractor for the collection of any class of material other than dead animals described in paragraph 1 of these specificstions must be uniform and have capacities in exact multiples of 1 yard, except as otherwise authorized in writing by the commissioners. Such vehicles must be seconstructed as to be loaded and unloaded and to carry their contents without offense to the public. They must be strongly built, must be plainly numbered on both sides. and marked with the name and address of the collection contractor, and must be kept in good repair, well painted, thoroughly cleaned, and free from odor at all times.

24. Care and use of garbage receptacles, vehicles, etc.—Every receptacle used by the contractor for the collection of garbage, whether tank, can, barrel, or the body of a cart or wagon, must be metal, water-tight, strongly built, provided with a close-fitting metal or other tight-fitting cover satisfactory to the commissioners, and have a capacity of not less than 30 gallons. The cover, if made of metal, must be equipped with rubber or other pads to effectually prevent rattling and, together with the body of the receptacle, must be thoroughly washed inside and out once each 24 hours; if furnished by the contractor for disposal, this washing must be performed by said contractor.

Every vehicle used for the collection of miscellaneous refuse and for the collection

of ashes must be so constructed as to prevent the escape of its contents during the

process of transportation and must be covered with canvas or other cover. When in motion on streets and avenues it must be tightly closed or covered, so that its contents are not exposed to view, and while being filled it shall not be uncovered for a longer time than is necessary, and every reasonable precaution must be used in transferring the contents of the householders' receptacles to prevent ashes and rubbish from blowing about.

25. Animals.—None but strong, serviceable horses or mules shall be used in connection with any work performed under these specifications, and illtreatment or neg-

lect of same will not be permitted.

26. Inspection of vehicles.—Each contractor must present all vehicles used by him

for inspection at such times and places as may be designated by the commissioners.

27. Collection of dead animals.—The contractor for the removal of dead animals will be required to remove them promptly as they may be found and reported to him. The commissioners will, however, assume no responsibility for the correctness of such report as may be made by any employee in the service of the said District, and the contractor for the removal of dead animals shall not charge for, nor can he collect from said District, any loss or losses incurred in responding to notification for the removal of a dead animal where said animal has, prior to such contractor's arrival, been removed by some other person, or where the owner of such animal refuses to consent to its removal. Each dead animal must be removed skillfully and without offense and transported in a closed vehicle to the place of disposal. Removal must take place, May to September, inclusive, within 6 hours, and from October to April, inclusive, within 10 hours after receipt of notification by the contractor by telephone or otherwise, or forthwith if directed to do so by the superintendent of street cleaning, and in the event of neglect so to remove the commissioners may perform such removal and charge the expense thereof to the contractor and may deduct and retain the cost thereof out of the moneys due or to become due to the contractor under this contract.

29. Disinfectants.—The contractor shall keep his plant and equipment disinfected

in such manner and by the use of such disinfectants as the commissioners may direct.

30. Collection of rubbish with other material.—If miscellaneous refuse is collected by the contractor for the collection of any other class of material, at the same time and with the same horses, men, and vehicles as are used for the collection of such other material, such miscellaneous refuse must be kept entirely separate and distinct from such other material, inclosed in tight sacks or other approved covered receptacle, or in a part of the vehicle partitioned off from the rest of, or in racks placed above, said vehicle, and such sacks or other receptacles must not be hung from the sides or body of the vehicle and must be so closed that their contents can not escape during the process of collection and transportation. Such method of combined removal shall not be put into effect without the consent and approval of the superintendent of street cleaning.

32. Dismissal of employees.—If an employee of a contractor use improper language or be under the influence of liquor while on duty, or accept or demand pay from citizens for service rendered, or falsify any report he may be called upon to make, or do any other act which in the opinion of the superintendent of street cleaning is inimical to the proper and efficient prosecution of the contract, the contractor by whom he is employed, shall, upon demand, at once discharge such employee from his service, and shall forthwith furnish such employee's full name and the nature of the work performed by him to the superintendent of street cleaning. No contractor

under these specifications shall employ, on any work under his contract, any person who has been discharged under the foregoing requirements.

33. Reports by contractor.—The contractor for the collection of any material mentioned in paragraph 1 of these specifications shall make daily reports to the superintendent of street cleaning, on blanks approved by him, which reports shall show the number of each collection district, the number of each vehicle employed therein, and the number of full loads and parts of loads, and the weight of each, or, in the case of dead animals, the number and species collected. Such reports shall show also the number of men and of horses employed each day with each vehicle. The contractor must also furnish to said superintendent, daily, a complete list of all failures on his part to comply with the requirements of his contract which have come to his notice during the preceding day, and the reason for such failure. The contractor for the collection and the contractor for the disposal of any material aforesaid shall furnish in writing such information in reference to the conduct of work under his contract 25 may be required from time to time by said superintendent or by the commissioners. If such information is not supplied within two weeks from the date of request for the same, the commissioners may, in their discretion, retain such money or moneys as may be due said contractor, until he has supplied the information requested.

34. Other business.—No contractor shall, without the written consent of the commissioners, engage in the collection or in the disposal of any material otherwise than as provided in such contract; nor shall he use any vehicle intended for the public collection of refuse of any sort under these specifications for any other purpose, except

with the written consent of the commissioners.

35. Telephone and visits.—The contractor for the collection and the contractor for the disposal of any material mentioned in paragraph 1 of these specifications shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense. The contractor for the collection of any such material shall call at the main office of the superintendent of street cleaning to receive orders, in person or through some responsible agent, at such times as the superintendent or the commissioners may direct. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, buildings, dumps, and all other sites in use by any of the contractors under these specifications.

36. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified shall be performed in a manner acceptable to him and to the commissioners.

37. Liquidated damages.—If the contractor fail at any time or times to promptly and properly collect, receive, or dispose of material or any part thereof, duly offered to him, as required by the contract, the commissioners shall have the right to perform such work, from time to time, and charge the expense thereof to the contractor, and deduct the same, from time to time, from any money or moneys due or to become due to him under the contract. It is hereby understood and agreed that the District of Columbia will be damaged by such failure or failures upon the part of the contractor in addition to the cost to the District of Columbia of doing said work, if done by the commissioners; that the amount of said damage is difficult, if not impossible, of definite ascertainment and proof; and it is hereby agreed that the amount of such damages exclusive of said cost shall be estimated, agreed upon, liquidated, and fixed in advance, and they are hereby agreed upon, liquidated, and fixed at the amount of \$2 for each such failure to collect garbage, night soil, or dead animals or ashes and refuse from buildings under the control of the commissioners, and the sum of \$1 for each such failure to collect ashes or refuse, exclusive, in each case, of the cost to the District of Columbia of doing said work, if the same is done by the commissioners, and the contractor hereby agrees to pay to the District of Columbia as such liquidated damages, and not by way of penalty, the said sum of \$2 for each such failure to collect garbage, night soil, or dead animals, or ashes and refuse from buildings under the control of the commissioners, and the sum of \$1 for each such failure to collect ashes or refuse, exclusive in each case, of the cost to the District of Columbia of doing said work if the same is done by the commissioners, and the amount or amounts of said sums which may become due to the District of Columbia, by the contractor, for liquidated damages, may be deducted from any money or moneys due or to become due to him under the contract. Nothing contained in this paragraph shall be so construed as to affect in any manner the rights of the commissioners to annul this contract or to suspend the contractor for any cause as provided by paragraph 43 of the specifications.

38. Employment of inspectors at expense of contractor.—Ordinarily inspectors will be employed by the commissioners. If, however, on account of any apparent disregard by any contractor of the requirements of his contract, additional inspectors are, in the opinion of the commissioners, required, such inspectors will be employed by said commissioners in such number as they may deem necessary, and will be compensated by said commissioners at a rate not to exceed \$4 per diem each, which compensation will be charged to the contractor for the supervision of whose work such inspectors have been employed and deducted from any money due or which may

become due to him.

 Payments.—Payments, except those for hauling ashes and refuse from buildings under the control of the commissioners, will be made semimonthly by checks of the disbursing officer of the District of Columbia, the payment for the first half of each month to be in the nature of a payment on account, and the amount of such payment shall not exceed one-half of the amount due for the entire month. Payments for each entire month shall be one-twelfth part of the per annum contract price, less the amount paid on account for the first half of said month.

40. Bond.—Good and sufficient bond with sureties or a surety company satisfactory to the commissioners will be required from each contractor conditioned for the faithful performance of the contract; that the contractor will be responsible for all claims for damages to persons, property, or premises arising by reason of the operation of any equipment or plant of the contractor, or the negligence of the contractor, his

agents, servants, or employees engaged in the work under the contract, or in consequence of any negligence in carrying on the work under said contract, or by or on account of any act or omission of the contractor, his servants, agents, or employees, and that the contractor will promptly make payment to all persons supplying him with labor or material in the prosecution of the work provided for in the contract. The penalty of this bond will be equal to the specified or estimated annual amount of the contract, and if the estimated annual amount of the contract is less than 25 per cent of the total contract price covering the entire term through which the said contract is in force, the penalty of the bond will be 25 per cent of said total contract price.

41. Transfers.—No contract or any interest therein shall be transferred by the parties

to whom the award is made, and any such transfer will be null and void.

42. Patents.—The contractor will be required to hold the District of Columbia

harmless against all claims for the use of any patented article, process, or appliance

in connection with the contract herein contemplated.

43. Failure.—If the contractor fails to commence the work at the time specified for its commencement, or fails to prosecute the work to the satisfaction of the commissioners, or attempts to transfer or assign his contract or any interest therein, or fails to perform any of the covenants of the contract, the commissioners, on 36 hours' notice in writing, may annul the contract or contracts affected by such failure or attempted transfer or assignment; or, on such notice, the commissioners may at their election suspend the contractor from the work, and in case of such suspension may at their further election enter upon, perform, and complete said work embraced in the contract, or may employ some other person or persons to do so, or may perform part of said work and employ others to do the remainder. In case of such suspension the commissioners shall have the further right, at their election, to take possession of, without legal process, and to use such reasonable force and means as may be necessary to take possession of the plant and equipment used by the contractor upon the work and to use the same in doing the work, without compensation for such use, license so to do being hereby given by the contractor, and the contractor hereby forever releases and discharges the commissioners and the District of Columbia from any and all damages or injuries which may be sustained, suffered, or claimed by reason of such possession and use of said plant and equipment.

All cost, damage, expense, and money expended or incurred by the commissioners of the District of Columbia by reason of such failure of the contractor and the cost of completing said work shall be charged against and paid by the contractor, and any money due or to become due him under the contract shall be applied toward the pay-

ment thereof.

44. Nuisance.—All work done under any contract must be performed in such a manner as, in the opinion of the commissioners, will not create a nuisance nor be injurious to public health.

45. Commissioners.—Wherever the word "commissioners" is used it is understood

to mean the Commissioners of the District of Columbia.

46. Supplementary service.—If any contractor for the collection and removal of any class of material described in paragraph 1 of these specifications fails, upon request by the commissioners, to provide in full the schedule collection service as required by the contract, the commissioners may, after one week's notice in writing to said contractor, cause to be instituted a supplementary collection service by vehicles employed under their own direction and may charge the cost of such additional service to the said contractor; and the amount of such cost will be deducted from any moneys due or to become due said contractor, and retained by the District or paid to the person or persons employed by the commissioners to do such work.

### SPECIFICATIONS FOR THE COLLECTION AND DISPOSAL OF NIGHT SOIL.

1. Definition.—The term "night soil" wherever it occurs in these specifications means the contents of all privies, and human fecal matter deposited on streets, avenues, alleys, roads, and open lots.

2. Hours of collection.—Night soil must be collected between 7 a. m. and 6 p. m. 3. Time allowed for collection.—The time allowed the contractor for any particular collection, after receipt of notice from the superintendent of street cleaning, shall not Not more than 24 hours will be allowed to elapse between the time exceed 48 hours.

of collection and disposal or removal from the District of Columbia.

4. Receptacles and manner of collection.—Night soil must be removed from the privies and transported to the disposal site by means of some air-tight apparatus, pneumatic or other process, satisfactory to the Commissioners of the District of Columbia, so as to prevent the contents from being agitated or exposed to the open air during the process of such removal or transportation.

Night soil intended for collection will be placed by householders in box privies constructed in accordance with the law. For the details of the construction of such privies, attention of bidders is invited to an act of Congress entitled "An act to regulate in the District of Columbia the disposal of certain refuse, and for other purposes," approved January 25, 1898. Attention is also called to certain regulations of the health department in regard to the care and cleaning of privies. The commissioners will endeavor to enforce this act of Congress and the health department regulations so far as may be practicable, but nothing in this act or in the health department regulations shall relieve the contractor from making collections of night soil when, in the opinion of the superintendent of street cleaning, such collections are necessary. If, in making the collections for which notice has been given by the superintendent of street cleaning, the contractor discovers any failure on the part of the householder to compty with the requirements of the above-mentioned act of Congress or the health department regulations, he must immediately notify the superintendent of street cleaning in writing of any such failure.

5. Obstruction of streets, etc.—If any street, avenue, alley, or road be obstructed so that vehicles used for the collection of night soil can not pass into, over, or through the same, the contractor must cause it to be removed to collection vehicles

on the streets, avenues, alleys, or roads which are not obstructed.

6. Collection.—The contractor must see that the collectors employed by him close any gates which they have opened in the process of collection and leave the premises

after such collection in as good condition as before the collection was made.

7. Transportation.—Arrangements for transportation, and the method of disposal, must be such that the regular daily disposal will not be interrupted by reason of (1) the obstruction of the Potomac River by ice or otherwise, (2) the effect of bad weather on roads, (3) inadequate railway facilities.

8. Lost articles.—Articles of special value found in the night soil collected must

be kept by the contractor in his office for a period of one year after the finding thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and, as nearly as may be possible, the place where found. A report of the finding of any such article shall be forwarded immediately to the superintendent of street cleaning, containing a full description of the article, name of the finder, and such other information as may be of assistance in discovering the owner.

9. Collection vehicles.—All collection vehicles used by the contractor must be so constructed as to be loaded and unloaded and to carry their contents without offence to the public. They must be strongly built and marked with the name and address of the contractor, and must be kept in good repair, well painted, thoroughly clean, and free from odor at all times. The contractor must present all vehicles used by him for inspection at any time or place which may be designated by the superintendent

of street cleaning.

10. Animals.—When horses or mules are employed, none but strong, serviceable animals shall be used in connection with any work performed under these specifications, and illtreatment or neglect of same will not be permitted.

11. Disinfectants.—The contractor shall keep his plant and equipment thoroughly disinfected. He shall also carry lime or other disinfectants on his collecting vehicles and each privy, after the contents have been removed, shall be thoroughly disinfected. A statement of the kinds of disinfectants to be used and the method of applying the same must be submitted to the superintendent of street cleaning for his

approval previous to July 1, 1913.

12. Notice of collection.—The notification to collect, issued by the superintendent of street cleaning, will be based largely on requests from householders for collection. The commissioners will, however, assume no responsibility for the correctness of such notification by the superintendent of street cleaning, and the contractor shall not charge, nor can he collect from the District of Columbia, any loss or losses incurred in responding to said notification where the address given is incorrect or it is found that there is no night soil at such locality to be removed.

13. Nuisance.—All work done under this contract must be performed in such a manner as, in the opinion of the commissioners, will not create a nuisance nor be

injurious to public health.

14. Reports by contractor.—The contractor shall make daily reports to the superintendent of street cleaning on blank forms approved by him, which reports shall show the kind and number of collection vehicles, the number of men, the number of horses, the number and location of sites used for disposal purposes, the number and location of transfer points, the number of other vehicles or boats used in transportation in addition to those used in the collection service, the number of air-tight receptacles of night soil collected, and the capacity of each receptacle. The contractor shall

also furnish in writing such information in regard to the conduct of the work under his contract as may be required, from time to time, by the said superintendent or by the commissioners. If such information is not received within two weeks from the date of request for the same, the commissioners may in their discretion retain such money or moneys as may be due said contractor until he has supplied the information requested.

15. Telephone and visits.—The contractor shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense, and shall call at the main office of the superintendent of street cleaning to receive orders, in person or through some responsible agent every day except Sundays and legal holidays. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, build-

ings, dumps, and all other sites in use by the contractor under these specifications.

16. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified shall be performed in a manner acceptable to him and to the commissioners.

### SPECIFICATIONS FOR THE COLLECTION AND DISPOSAL OF ASHES AND REFUSE FROM PUBLIC BUILDINGS UNDER THE CONTROL OF THE COMMISSIONERS.

1. Work to be done.—The work to be done consists of the collection and disposaof all ashes and refuse from the following buildings under the control of the commisl
sioners, viz, public-school buildings, houses of fire-apparatus companies, police
stations, District Building, municipal lodging house, police court, public library and
branches, Home for ex-Union Soldiers and Sailors, and from any other District institutions or buildings that the commissioners may order, the same to be disposed of as required by regulations of the District of Columbia. Ashes may become the property of the contractor, or, at his option, may be deposited on the dumps designated from time to time by the commissioners and in accordance with their direction. Paper and other light refuse must be removed in sacks or bags tightly tied, or otherwise secured, so that none of the contents can escape in loading or in transportation, and such refuse may become the property of the contractor or may, at his option, be delivered to the contractor for the disposal of miscellaneous refuse at the point or points designated by said latter contractor and approved by the commissioners.

. Quantity.—Nothing in this contract shall be so construed as to prevent the District of Columbia from hauling such quantities of such ashes and refuse, or from permitting others to remove so much of the same without cost to the District, as the commissioners may desire. The removal by the contractor of less than a full load will not be permitted. Refuse and ashes must be hauled separately and must not

It is estimated that approximately 10,000 cubic yards of ashes and refuse will be offered to the contractor each year for collection and disposal, and this amount will be used in arriving at the amount of bond, but the commissioners will assume no responsibility as to the correctness of this estimate.

3. Hours for collection.—Collections must be made between 7 a. m. and 6 p. m. 4. Time allowed for collection.—Collections must be made within 48 hours after notice from the superintendent of street cleaning, and failure to make such collections will

render the contractor liable to the provisions of this contract providing for failure

and for liquidated damages.

5. Dumps for ashes.—If the commissioners authorize the disposal of ashes on such public dumps as may be controlled by them from time to time the contractor shall provide his own safeguards at such dumping places, and shall take such precautions as may be necessary to prevent accident. The commissioners will assume no liability for accidents resulting through the contractor's use of said dumping places. The superintendent of street cleaning shall station at such places a representative, who shall have general supervision and control over the points at which dumping must be done, the time of opening and closing said dump, the prevention of all fires on the dump, the trimming and handling of all material, the persons permitted on the dump, and shall determine the character of such material as is presented for disposal. Only clean ashes will be accepted at such dumps, and the representative of the superintendent of street cleaning shall be empowered to refuse all ashes mixed with other materials brought to the dump and to require such mixed material to be separated, or to order it removed forthwith. The contractor shall be bound to conduct the dumping in accordince with the directions of the superintendent of street cleaning, and the contractor must comply with such directions.

Collection vehicles.—Collection vehicles must have tight bodies and capacities of 1 cubic yard or exact multiple thereof, must be strongly built, well painted, in good

repair, and plainly numbered on both sides and marked with the name and address of the collection contractor. No vehicle is to be used unless measured by the sealer of weights and measures of the District, who will mark in a conspicuous place on the body the capacity of each when filled with a "well rounded-off" load. Ashes must be transported within the District of Columbia in covered vehicles satisfactory to the commissioners.

7. Animals.—When horses or mules are employed, none but strong, serviceable

animals shall be used in connection with any work performed under these specifications, and ill treatment or neglect of same will not be permitted.

8. Notice of collection.—The notification to collect, issued by the superintendent of street cleaning, will be based largely on requests from buildings for collection.

The commissioners will, however, assume no responsibility for the correctness of such notification by the superintendent of street cleaning, and the contractor shall not charge nor can he collect from the District of Columbia any loss or losses incurred in responding to said notification where the address given is incorrect, or it is found that there is no ashes or refuse at such locality to be removed.

9. Telephone and visits.—The contractor shall provide telephone connection with the office of the superintendent of street cleaning at the contractor's expense, and shall call at the main office of the superintendent of street cleaning to receive orders in person or through some responsible agent every day except Sundays and legal holidays. The properly authorized officials or employees of the District of Columbia shall have the right to visit, at any hour of the day or night, the plants, stables, buildings, dumps, and all other sites in use by the contractor under these specifications.

10. Supervision.—All work shall be done under the supervision of the superintendent of street cleaning, and all details of such work as are not herein particularly specified

shall be performed in a manner acceptable to him and to the commissioners.

11. Lost articles.—Articles of special value found in the ashes or refuse collected must be kept by the contractor in his office for a period of one year after the finding

thereof.

As soon as possible after the finding thereof the contractor must cause each such article to be properly marked so as to show the date of finding and as nearly as may be possible the place where found. A report of the finding of any such article shall be forwarded immediately to the superintendent of street cleaning containing a full description of the article, name of the finder, and such other information as may be of assistance in discovering the owner.

# REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS.

WASHINGTON, September 9, 1915.

Sir: I have the honor to submit the following report showing operations of this office during the fiscal year ending June 30, 1915:

In the total number of samples tested there was an increase of 25 per cent over the previous year, being 14,853 as against 11,184; notwithstanding this increase the work

has been kept current and is current to-day.

The Washington Asphalt Block & Tile Co., whose plant was destroyed by fire January, 1914, has not as yet resumed operation, consequently no materials from that source were inspected. Any asphalt block used by the District during the year were

from stock on hand manufactured and tested prior to January, 1914.

The practice inaugurated last year of keeping cement under constant visual inspection for 10 hours, unless it attains its hard set in a shorter period, has been continued during the year. This was started with view to more nearly checking conditions in actual cement work. While all was found to set within the prescribed 10 hours, it is thought desirable to continue this actual 10-hour visual inspection as it requires no increase in force.

In compliance with provision carried in act making appropriation for expenses of the government of the District of Columbia, 1914, providing in substance that all construction materials other than those for use in paving, requiring tests, shall be tested by the Bureau of Standards, the commissioners last March ordered:

That all future contracts provide that cement be tested by the Bureau of Standards. That cement furnished in connection with any than current contract which had been tested and passed by the Bureau of Standards would be released for use after the following additional or acceptance tests had been made by the District, viz, fineness, initial set, hard set, 24-hour tensile neat cement.

That cement furnished under then existing contracts, not tested by the Bureau of Standards, be tested by the District in accordance with previous procedure, with omission of the chemical analysis, except cement for paving, the 28-day test be omitted and one-day tensile tests of neat cement be added.

Tests by the Bureau of Standards are made by a representative of the bureau either making the actual tests at the mill or collecting and forwarding samples from the mill

to the bureau for tests.

The bins from which the samples are taken are sealed by the bureau's inspector and no cement added thereto or taken therefrom except under inspector's supervision. Shipments are made in cars sealed by the bureau's representative, certificates covering each is mailed by the bureau to the consignee.

While cement used by the District is now tested by the Bureau of Standards, this

does not materially lessen the work of this office, for the reason a representative of the District must witness the breaking of the seals and unloading of each car to insure that none other than cement tested and passed by the Bureau of Standards is put in a local warehouse for use by the District. All received is given a lot number and issued in the same manner as when tested by the District alone. Besides, the District still has to make the final acceptance tests of all cement, notwithstanding it has been subjected to preliminary tests by the Bureau of Standards.

Breaking of seals and unloading of cars containing cement consigned to the District government cement warehouse is not done under supervision of this office. That is done by employees of the District stationed at that point.

With the \$1,000 carried by last year's appropriation act for purchase of new apparatus for this office, there was purchased new balance, penetration machine, moist cabinet, balopticon, sieves, platinum ware, etc., placing the laboratory in a position to successfully carry on any desired tests of asphalt or cement

Very respectfully,

J. O. HARGROVE, Inspector of Asphalts and Cements.

Capt. W. D. A. Anderson, Corps of Engineers, U. S. Army, Assistant to Engineer Commissioner, District of Columbia.

Total number of samples tested.	
Asphalts:	
Bermudez	16
Aztec	45
Montezuma	2
Sun Co. (cement).	10
Asphalt mixtures:	
Binder	13
Cement—	
Binder	99
Topping.	335
Concrete	11
Concrete mixture.	16
Topping mixture	366
Topping (old surface material).	10
Cement, Portland.	, 441
Oils:	, ***
Flux	8
Fuel	15
	21
Road	3
Pitch, paving.	
SandsStone:	167
Binder	85
Crushed	_5
Limestone dust	52
Trap-rock screenings.	· _6
Tar.	12
Miscellaneous	47
Total 14	785

### ASPHALTS.

Test of samples of asphalt, used in the laying and repairing of pavements for the District of Columbia, showed the following percentage of bitumen soluble in carbon bisulphide:

From Cranford Paving Co.:	
12 samples Bermudez, refined, representing 845 tons	94. 50
38 samples Aztec asphalt cement, representing 1,350 tons	99. 79
1 sample Montezuma asphalt, representing 40 tons	99.90
From municipal asphalt plant:	
10 samples Sun Co. cement, representing 303 tons	99. 26

# ASPHALT CEMENTS.

Table showing penetration results of asphalt binder, topping and surface mixture wed by Cranford Paving Co. and municipal asphalt plant.

# [Penetration at 77° F.]

	Cranford Paving Co., Bermudes cement,		Munici- pal asphalt plant,
	Binder.	Topping.	Sun Co. coment, surface mixture.
umber of samples.	100	95	344
ghest test: ° Office	62 62	64 62	
west test: OfficeYard	51 53	48 50	4
erage of all samples tested: Office. Yard	56 57	55 55	

# BINDER STONE.

During the year there were examined 85 samples of binder stone used in the laying and repairs of asphalt pavements with no rejections.

The Cranford Paving Co.:	
Samples	. 85
Cubic yards	0 978
Ouble yaughtenessessessessessessessessessessessesses	. 0,000

### ASPHALT BINDER MIXTURE.

Analysis of 13 samples taken from the Cranford Paving Co., showed an average of bitumen soluble in carbon bisulphide and mesh composition, as follows:

The Cranford Paving Co.:

цε	o chamoru I aving co
	Samples
	Dampies
	Bitumen soluble in carbon bisulphideper cent.
	Ditumen soluble in carbon bisulpinus

Retained on—	Per cent.
1-inch mesh screen	1.5
1-inch mesh screen	. 16.3
i-inch mesh screen	26.2
1-inch mesh screen.	33.4
8 mesh per linear inch.	
10 mesh per linear inch.	
20 mesh per linear inch	1.8
40 mesh per linear inch	1.3
60 mesh per linear inch.	.8
80 mesh per linear inch.	
100 mesh per linear inch.	
Passing 100 mesh per linear inch.	2.8
z want 200 mon por mou mon mon	

3.9

#### ASPHALT SURFACE MIXTURE.

During the year 96 samples were collected from the Cranford Paving Co. for examination and analysis. The following tables show the maximum, minimum, and average per cent bitumen contained and the average mesh composition of mineral aggregate:

	Samples.	Per cent bitumen.		
		Highest.	Lowest.	Average.
Cranford Paving Co.: Asphalt, Asteo	67 29	11. 8 12. 0	9.9 10.3	10. 8 11. 4

# Mesh composition of aggregate used in mixture.

Retained on sieve having—	Per cent.
20 mesh per linear inch	3.9
40 mesh per linear inch	24.0
60 mesh per linear inch	29. 0
80 mesh per linear inch	15. 0
100 mesh per linear inch	7.0
Passing 100 mesh per linear inch.	21.0

### LIMESTONE DUST USED IN SURFACE MIXTURE.

This material is used as a filler to reduce the void in the sand used in asphalt surface mixture. During the year there were examined 44 samples, all of which passed the required degree of fineness, i. e., all to pass a 30 and not less than 85 per cent to pass 100-mesh sieve.

	Samples.	Tons.
Cranford Paving Co	37 7	1,140 185

### SAND USED IN SURFACE MIXTURE.

Of this material 164 samples, representing 23,243 cubic yards, were inspected, of which 10,530 cubic yards were rejected on account of coarseness and excessive percentage of mud.

	Samples.	Accepted.	Rejected.
Cranford Paving Co	160 4	Cu. yds. 10,950 1,763	Cu. yds. 10, 530

### ASPHALT FLUX.

Eight samples were submitted by the Cranford Paving Co., representing 480,000 pounds, manufactured by the Barber Asphalt Paving Co., all of which passed the requirements of the specifications.

### ASPHALT CONCRETE.

During the year there were laid by the Cranford Paving Co., under contract, about 18,151 square yards of asphalt concrete, laid on crushed stone of 6-inch concrete base. The asphalt concrete mixture consisted of 2 parts trap rock crushed to a size from three-fourths inch to dust and 1 part concrete sand, to which was added 5 per cent limestone dust.

The stone and sand were heated to a temperature of about 300° F., the limestone being added in the cool state to the hot mixture and thoroughly mixed in an asphalt

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mixer. Hot asphalt cement (Bermudez) was then added and the whole thoroughly mixed for about five minutes; it was then hauled from the paving plant to the site of the work and spread over the roadbed to a thickness of 3 inches, then rolled with of the work and spread over the roadest was the tendence of 3 licens, then toled was the spread a thin coating of asphalt cement for the purpose of filling voids. A light coating of trap-rock screenings three-eighths to one-eighth inch was then spread on the surface as a top coating and rolled with a 10-ton steam roller.

The following is a table showing average of laboratory tests of asphalt cement and

mineral aggregate used in the preparation of the asphalt concrete:

ASPHALT CEMENT.	P	er cest.
Bitumen soluble in carbon bisulphide (not including flush coat) Penetration at 77° F., 5 seconds, 100 grams	•••••	. 6.4 . 60.0
CONCRETE MIXTURE-MINERAL AGGREGATE-MESH COM	POSITION.	
Retained on-		
1-inch mesh screen	per cent	0.6
inch mesh screen		
inch mesh screen		
Linch mesh screen.		
8 mesh per linear inch		
10 mesh per linear inch	do	26
20 mesh per linear inch	do	6.3
40 mesh per linear inch		
60 mesh per linear inch	do	6.4
80 mesh per linear inch	do	11
100 mesh per linear inch.	do	
Passing 100 mesh per linear inch	do	8.0
Charifa amarita of stans		9 740
Specific gravity of stone	• • • • • • • • • • • • • • • • • • • •	4. /TU
Specific gravity of sand	• • • • • • • • • • •	2. /00

Voids in aggregate.....per cent. 21.61 ASPHALT SURFACE MIXTURE (ASPHALT CONCRETE)-MUNICIPAL ASPHALT PLANT.

There were examined 270 samples of asphalt concrete mixture, representing about

5,881 cubic yards.

This material was a mixture composed of old asphalt surface mixture (topping and binder) which after being removed from the street was hauled to the municipal asphalt plant and crushed in a Noyes rotary crusher to a fineness ranging from 1 inch to dust, to this material was then added trap-rock screenings, fine sand, limestone dust and asphalt cement about the following proportions: Old asphalt surface material, 66 per cent; fine sand, 23 per cent; trap-rock screenings, 6 per cent; limestone dust 2 per cent; and asphalt cement, 3 per cent (penetration at 77° F., 5 seconds, 100 grams 56), the whole being mixed as above described, under asphalt concrete and used for the same purpose.

Following are average results of tests showing percentage of asphalt and mesh com-

position of mineral aggregate of the old asphalt surface material:

OLD ASPHALT SURFACE MIXTURE (AFTER CRUSHING).	
101. 1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Per cest.
Bitumen soluble in carbon bisulphide	20
MINERAL AGGREGATE, MESH COMPOSITION.	
Retained on—	Per cess.
inch mesh.	7.5
inch mesh.	20.0
8 mesh per linear inch	12.6
8 mesh per linear inch	12.0
10 mesh per linear inch	1.9
20 mesh per linear inch	3.9
40 mesh per linear inch	15.3
60 mesh per linear inch	16.3
90 meah mar linear inch	6.0
80 mesh per linear inch	
100 mesh per linear inch	2.1
Passing 100 mesh per linear inch	11.9

# ASPHALT CONCRETE MIXTURE (AFTER PRODUCTION AVERAGE). Bitumen soluble in carbon bisulphide 9. 1 MESH COMPOSITION, MINERAL AGGREGATE. Retained on— Per cent. inch mesh 1.0 inch mesh 5.9 8 mesh per linear inch 11.0 10 mesh per linear inch 2.2 20 mesh per linear inch 6.5 40 mesh per linear inch 24.7 60 mesh per linear inch 23.0 80 mesh per linear inch 8.7 100 mesh per linear inch 3.4 Passing 100 mesh per linear inch 13.6

### TRAP-ROCK SCREENINGS.

During the year there were examined 6 samples of trap-rock screenings used in the laying of asphalt concrete pavements with no rejections.

	Samples.	Cubic yards.
Cranford Paving Co	5 1	3, 350 386

### HYDRAULIC CEMENTS.

# Barrels inspected and the average results of tests on same—Portland cement.

	Dragon.	Saylor's.	Security.	Tide- water.	Vulcan- ite.
Barrels	5,620	12,495	71,889	27,414	17,012
Samples	562	1,249	7,188	2,741	1,701
Fineness, passing 100 mesh sieveper cent	95.4	99.5	94.8	95.7	95.6
Fineness, passing 200 mesh sievedo	80.3	84.6	79.6	80.7	80.3
Initial set (hours and minutes)	4-5	5-10	5-15	5-20	5-20
Hard set (hours and minutes)	6-0	7-15	7-20	7-30	7-20
Water used:					
Nest coment	23.2	23.0	23.0	23.0	23.0
3 parts Ottawa sanddo	11.6	10.3	10.3	10.3	10. 3
Temperature of air and water	78	78	77	79	80
Tensile strength, in pounds per square inch:	, ,		1 "		
Neat-	1	1		1	1
1-day	481	326		515	283
7-day		731	714	696	752
28-day		778	770	703	815
Sand—		110	110	٠	0
	343	303	284	289	357
1.3, 7-day		397	363	3-/2-210	423
1.3, 28-day					
Specific gravity	3. 153	3. 240	3. 148	3. 197	3. 169

In the testing of cement, samples are taken from 10 barrels of each 100-barrel lot and tested individually. The 13,441 samples tested represent 134,430 barrels, of which 150 were rejected.

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Cement tested and by whom submitted.	
Cranford Paving Co.: Barrels.	Barrels.
Dragon 5, 620	
Vulcanite	
	22, 632
District of Columbia:	•
Tidewater	
Security	
<u> </u>	74, 939
E. G. Gummel (Tidewater)	15, 090
Harner & Voigt Co. (Tidewater)	5, 675
Municipal fish wharf (Tidewater)	799
Municipal fish wharf (Tidewater). Pennsylvania Avenue Bridge (Security).	2, 800
Q Street Bridge (Saylor's)	12, 495
Total	134, 430

### REPORT OF THE SURVEYOR.

Washington, August 19, 1915.

Sir: I have the honor to transmit herewith the following report of the work of this office, including street extensions (see separate report of the assistant surveyor, of the District of Columbia) for the year ended June 30, 1915:

Section 1590 of the Code of Law for the District of Columbia provides, "that the surveyor shall, as speedily as possible, execute any order of survey made by any court or private individual of any lot or square within the city of Washington, or of any land within the District of Columbia outside of said city, and shall make due return of a true plat and certificate thereof." The code also provides that work of this character shall be charged for in accordance with the schedule of fees prescribed by the commissioners.

The total amount of fees for the past fiscal year for this class of work was \$12,817.95. This work consists of surveying building lots for purposes of construction, locating all new buildings thereon as required by the building regulations, determining party lines when ordered, ascertaining the position of buildings for title companies and for property owners, surveying agricultural land, subdivision of property into lots, making plats required by the regulations to accompany applications for permits to build, and the drawing of tracings to accompany applications for theaters, garages, etc.

### SURVEYS FOR PRIVATE PARTIES.

The amount of work of all classes, as shown by the accompanying table, compares favorably with that of the previous year. As shown by the table, the office received 3,017 orders for private work during the past fiscal year.

### SURVEYS FOR THE UNITED STATES AND DISTRICT OF COLUMBIA.

The amount of this work has largely increased over that of any previous year. consists of giving alley lines and street lines for the guidance of the surface division for their contemplated improvement, surveys for schools and engine houses, locating encroachments on public highways, surveys upon request of the health office based upon complaints of alleged nuisances, surveys of streets and alleys in connection with proposed condemnations, and any other work of this character specially requested

by the District or General Government.

The office has been engaged in considerable work for the Occoquan institutions, such as locating the line of the industrial railroad, topographical plats of parts of the tract, and locating and preparing map of all the improvements. In this connection also an important and valuable work done the past year was the planting of permanent substantial monuments around the outside of the boundary of the entire tract.

Much work has been done, and information furnished, for the United States En-

gineer Office and the Department of Justice.

One field party has been engaged for more than a year upon a comprehensive survey of all the property lines, high-water lines and 10-foot contour lines of the Anacostia River from its mouth to the District line. The field work has been completed and computation and map is now being made. A change of the highway plan in connection with this work has been recommended.

The following table is submitted as a matter of comparison and convenience. It will show the relation of the work for the past year with that of the precious year:

	Fiscal y	ear-
	1913–14	1914–15
FOR PRIVATE PARTIES.		
Individual lots or parts of lots surveyed in city and county	1,505	1,561
Certificates of survey issued covering one or more lots	1,018	959
Duplicates of above recorded in survey certificate books	1,018	959
Separate surveys made to verify walls	748	803
Separate surveys made to verify walls. Individual buildings inspected as to location of new walls	1,594	1,535
Walls moved before final certification	761	318
Large tracts in county surveyed, subdivided and recorded	19	Ď.
Outline surveys in county of unsubdivided tracts	30	20
Subdivision blanks prepared. Duplicate subdivision blanks prepared for assessor.	358	299
Dermiline to enthicipie in his his prepared for accessor	358	299
Subdivisions recorded.	303	293
Total of individual new lots in subdivisions.	2,706	
Dieta of one or wors recorded lets to eccumpany employing for building one	2,700	1,904
Plats of one or more recorded lots to accompany applications for building per-		
mits (commonly called "building plats").  Plats made under regulations for theatres, stables, motors, etc.	973	1,029
Plats made under regulations for theatres, stables, motors, etc	199	193
Indorsements on survey plats Indorsements on wall survey plats	1,018	959
Indorsements on wall survey plats	748	803
Estimates of cost issued in triplicate	3,329	3,017
Plats made up on order of private parties	2,597	2,509
Plats made up on order of private parties	\$13,535.90	\$12,817.95
FOR THE DISTRICT OF COLUMBIA.		
Surveys for the District of Columbia.	82	121
Plats recorded (condemnations, dedications, etc.)	55	67
Postal-card reports concerning walls to owners.	748	803
Postar-card reports concerning wans to owners	/100	798
Reports concerning walls to building inspector.	783	
Assessment and taxation plats recorded	195	254
MISCELLANEOUS.		
Total of surveys for the District of Columbia and private parties	1,897	1.912
Total of plats, public and private, including plats drawn in books		4,643

### STREET EXTENSIONS (STREET AND ALLEY CONDEMNATIONS).

Attached to this report is the report of the assistant surveyor for the year ended

June 30, 1915, relating to matters of extension of streets and alleys.

During the year 18 street, alley, and park condemnation cases have been prepared and filed. At the close of the fiscal year there were 16 condemnation cases in court; 14 cases have been confirmed and others have been dismissed for various causes.

In connection with these condemnation cases this office makes survey in each case, prepares plats in triplicate, furnishes the ownership and descriptions of all the property to be condemned, prepares descriptions of the land taken and property benefited, and finally examines verdict and makes recommendation as to same.

The office has now finished other work under this head, and maps and descriptions covering same are now in course of preparation which will be forwarded for the com-

missioners' approval.

Some of the most important work in this connection is the widening of Benning Road (two cases), the widening of Georgia Avenue from Rock Creek Church Road to the District line, widening of Cathedral Avenue and Woodley Road from Connecticut Avenue to Wisconsin Avenue, widening of Minnesota Avenue, extension of Thirteenth Street from Spring Road to Colorado Avenue and several minor connections, and the widening of Wisconsin Avenue to the District line.

### SURVEYS OF OLD SUBDIVISIONS.

The following surveys chargeable to the appropriation of \$2,500 for surveys of old

subdivisions have been made:

Square 3883, Mills Avenue and West Woodridge, Wisconsin Avenue from Georgetown to the District line, Georgia Avenue from Florida Avenue to the District line, Benning Road and many old boundary lines along the Anacostia River. One hundred and fifty stone monuments have been planted marking the boundary lines of subdivisions situated in the above localities. Many more will be planted when the Anacostia River survey is completed.

This work is very useful for the future convenience of the office. If the entire District were surveyed and stone monuments planted at all prominent corners, the work of this office would be greatly facilitated. Oftentimes a whole day is spent in making a survey of one lot (for which a charge of \$8 only can be made) situated in a subdivision without permanent marks.

### PARKS.

Fifty thousand dollars has been appropriated in two acts for the acquisition of small parks at the intersection of streets outside the limits of the original city. Eight parcels were selected to be purchased out of the first appropriation; of these cases three were dismissed by order of the court, and the others continued to September 15, Selections have also been made to be condemned in accordance with the

second appropriation, and the commissioners have ordered condemnation.

In this connection I wish to report that these selections have been made in accordance with a map on file in this office. This action was made necessary by the law. Since the preparation of the map referred to improvements have been made on a number of the parcels, rendering their acquisition expensive, and leaving practically none available, and it is recommended that the law be so changed as to give the commissioners general authority to select such as, in their judgment, are important and in the public interests. I do not believe that the commissioners should be confined in their selections to any map prepared for that purpose, for the reason that conditions are so rapidly changing that they should be given a wider latitude.

This appropriation should be continued, as the area of the small parks in the county

does not nearly compare in percentage to the area of those in the original city.

These small triangular parks add much to the beauty of the District, besides preventing in many instances objectionable structures.

Action should be taken to acquire Piney Branch Parkway running northeast from Sixteenth Street and Piney Branch so as to connect with the Municipal Hospital. This park was recommended by the park commission in their report of 1902, and it has previously been recommended by a former board of commissioners. An inspection of this land will show that it is being used as a dump, rapidly destroying a natural park. If this were acquired it would connect Rock Creek and Zoological Parks by way of Piney Branch to Municipal Hospital and on to Soldiers' Home. This land has much natural beauty and is well adapted for park purposes, but it is now rapidly being destroyed; and, besides, the land is rapidly increasing in value. It is only a question of time when this valley will become as great a nuisance and eyesore as the Rock Creek Valley, which, as is well known, is now a great insanitary dump. An effort has been made to acquire the Rock Creek Valley between the Zoological Park and the Potomac Park, but millions of dollars would have to be spent to reclaim that

valley, while Piney Branch Parkway could be acquired and made beautiful now without a very great expenditure, and this should be done before it is destroyed.

Sketches have been made by this office for a small park at the west end of the new Q Street Bridge, with a connection along the westerly boundary of Oak Hill Cemetery to the Georgetown Heights, at a cost as estimated by this office of about \$40,000. It

is recommended that authority be given to carry out this project.

There is a fund of over a hundred thousand dollars available for the condemnation of alleys and minor streets. This is the result of an appropriation made in 1893, followed by subsequent appropriations in 1904, 1907, and 1908. These appropriations were intended largely for the purpose of converting inhabited alleys into minor streets. It is held that the entire cost of the land taken must be assessed as benefits. Several unsuccessful efforts have been made to convert inhabited alleys into minor streets, but the jury has always been unable to find benefits equal to the damages, and therefore the law has been rendered inoperative. In many cases a condemnation in accordance with this law would be confiscation, and it is believed that some remedial legislation should be had so that an appropriation would be available for the purposes for which it was intended.

The question of eliminating interior alleys and converting same into minor streets or interior parks is one that has been given a great deal of attention by the authorities and the civic associations, and many are in favor of the interior park. If the interiorpark scheme were extended throughout the city with a view of eliminating objectionable inhabited alleys, it would involve the expenditure of a very large amount of money, and under the various plans proposed no provision has been made for the care of the inhabitants of these alleys.

There is no doubt of urgent necessity for bettering these localities of vice and insanitary conditions, but the conversion of them into interior parks is not believed to be the most desirable, for the idea and whole object of a park is that it should be for the benefit of the greatest number of people, affording a place of recreation and pleasure and at the same time serving the great purpose of beautifying and making more attractive the city. These interior parks would be surrounded by insanitary back yards, from which there would be objectionable odors, and the backs of houses with all their objectionable features exposed to the parks. Many of these houses would be inhabited by undesirable tenants whose influence and mode of living would be anything but agreeable to the park idea. An investigation of Willow Tree Alley, converted into a park, is convincing that these parks should be opened wide to the streets, and not entered, as is done in this case, by a narrow, objectionable alley. I do not believe that the better class of citizens would permit their children to pass up these alleys into these interior recreation parks. Thousands of dollars have been spent on would be spent if this scheme were enlarged. Certainly the visitor, nor the majority of our citizens, never saw or received any benefit from this kind of a park.

I believe a better treatment, where the square will permit, is to have two minor

streets run through the square from street to street, providing for a parkway between and two fronts for the remaining lots; and where this could not be done, a minor street could be opened through the square, thus eliminating the many objections raised to the interior inhabited alleys. In most cases, with this kind of treatment, benefits could be found equal to the damages, while I can see little benefit in the interior-park scheme. This plan could be extended throughout the city with much less cost, at the same time eliminating many objectionable alleys. The minor-street scheme would add revenue from taxes, while the other would be a heavy burden imposed.

I recommend that the law be so changed that the entire cost need not be assessed

upon the remaining property benefited.

### STREETS.

A recommendation has been made in the estimates for \$2,000 to cover the cost of

survey and plats for the condemnation of streets in Barry Farm.

Barry Farm is a subdivision of about 400 acres, title to the streets being in the abutting property owners. This condition has existed since about 1867. This matter has been before the office for a number of years, and it has been previously recommended that steps be taken to acquire title to the streets so that much needed improvements could be made. The subdivision is in urgent need of water and sewer, and the authorities should not long neglect the needs of this community. Bill and plats covering this entire matter have been previously forwarded. It is recommended that a minor street be extended from Georgia Avenue to Florida Avenue, about opposite the baseball park, in accordance with plat on file in this office.

In connection with this the Georgia Avenue street car line should be brought through this street, connecting with its present Ninth Street tracks. This would prevent the double occupation of Florida Avenue between Seventh and Ninth Streets by the two railroad lines, leaving Georgia Avenue clear of car tracks from Florida Avenue

to the new street.

This would be a great benefit to the public going to and from the ball park, at the same time eliminating some very dangerous conditions at this point, where accidents have occurred and will continue to occur under the present arrangement. This also it is believed would in addition give a far better street car service.

It is also recommended that Rock Creek Drive and Lovers Lane between Massa-

chusetts Avenue and R Street be condemned, and an appropriation made for the improvement of the same. This project was at one time authorized, but failed on account of its being superseded by the general act providing for the condemnation of the Rock Creek Valley.

It is recommended that the commissioners secure legislation authorizing them to abandon old county roads when they become useless, and in some cases a hindrance, to their respective neighborhoods and dangerous to traffic. The commissioners have similar authority with respect to alleys. As the District is developed in accordance with the highway plan, this law becomes more necessary, so that the commissioners may be relieved of any responsibility over these abandoned roads.

Bill covering this has been previously forwarded.

My thanks are due the employes of the office for their support and their unfailing courtesy to the public during the past year.

Very respectfully,

M. C. HAZEN, Surveyor District of Columbia.

Capt. W. D. A. Anderson, Corps of Engineers, U. S. Army, Assistant Engineer Commissioner, District of Columbia.



### STREET EXTENSION DIVISION.

WASHINGTON, August 18, 1915.

Sin: I have the honor to submit herewith report of the operation of the street extension division for the fiscal year ended June 30, 1915.

During the year 18 street, alley, and park condemnation cases have been prepared and filed, but owing to crowded condition of the court docket the usual proportion of cases has not been finally disposed of, and several important ones—Benning Road (2 cases) and Georgia Avenue—have been postponed until next year.

The field work in connection with survey of the Anacostia River Flats has been completed during the year and the computations and preparation of plats necessary

to start condemnation proceeding will be finished shortly.

A survey of Wisconsin Avenue from Massachusetts Avenue to the District line has been made, and is awaiting decision of the commissioners to start condemnation

Submitted herewith is a table showing action on all condemnation cases filed during the year, and action on cases previously filed where such cases were not finally disposed of prior to July 1, 1914.

Very respectfully,

J. B. SHINN, Assistant Surveyor District of Columbia.

The Surveyor.

# Condemnation cases. STREET EXTENSIONS AND PARKS.

	1					Verdict	Hot.	
Location.	docket No.	S o	Act approved.	Case filed.	Verdict filed.	Damages.	Benefits.	Action on verdict.
Minnesota Avenue, Pennsylvania Avenue to Sheriff	8	28	Feb. 25, 1909	May 22, 1909				Discontinued; new case filed.
Kosd. Rosd along Anscostis River	1040	170	May 10, 1910	Nov. 27, 1912				Judgment reversed on appeal by District of Columbia; cause
Establishment of building restriction line, south side	1050			qo				remanded. Indefinitely continued.
Park Road, north side Kenyon Street, both between Thirteenth and Fourteenth Streets.  Establishment of building restriction line, Columbia Read, south side, between Fourteenth and Fifteenth	1063			Jan. 25, 1913				Case discontinued by order of Com- missioners District of Columbia
Extension of New Hampshire Avenue	1068 1078	22	Mar. 3, 1913 Mar. 4, 1913	July 14, 1913 Nov. 8, 1914	June 22, 1914 June 19, 1914	\$51,625.75	\$52, 995. 31	Confirmed Feb. 5, 1915. Confirmed in part July 31, 1914.
Extension of Girard Street, square 2669.	1006	:		Feb. 27, 1914				Case dismissed by attorney for
Parks: Squares 2560, 2594, west of 2675, 2841, 3099, 3353, 3532, 5607.	1098	\$	Mar. 4,1913	Apr. 1, 1914			:	Case dismissed as to squares 2504, 2841, and 3353; continued to Sept.
Madison Street from Fourteenth Street to Colorado	1099			do	Oct. 5, 1914			15, 1915. Not confirmed; case appealed.
Avenue.  Extension of Second and V Streets NE.  Buchanan Street, Piney Branch Road to Avenue of the	0011			do	Dec. 12, 1914	7,620.84	8,086.04	Confirmed Jan. 14, 1915. Case discontinued; land soquired
Presidents. Tennyson Street through parcel 49/21	1102			Apr. 3, 1914	June 30, 1914	427.30	727.06	
White Fige SE. Widening Berning Road	355			do. 21.1914	Sept. 29, 1914	1,977.62	2,287.40	
Widening Georgia Avenue Sixteenth and Grard Streets NE.				June 30, 1914 do.	Jan. 12, 1915	3, 720.97	4,165.05	Case continued to Oct. 14, 1915. Confirmed Feb. 5, 1915.
Square abots, for highway and park purposes.  Extension of Clirard Street, aduare 2669.  Widening Meigs Place, Sixteenth Street to Bladensburg.	122			Sept. 22, 1914 Oct. 9, 1914 Oct. 12, 1914	Feb. 4, 1916 May 3, 1915	1,116.00	1,402.79	Confirmed in part Mar. 4, 1915. Continued to Sept. 15, 1915. Not yet confirmed.
Acodo.  Opening Portland Street  Widening Columbia Road abutting square 2669  Widening Columbia Road abutting square 2669	1138			Oct. 24, 1914 Feb. 13, 1915 Feb. 77, 1915	Dec. 7,1914	26, 226. 70	26, 518, 10	Confirmed Feb. 19, 1915. Continued to June 16, 1915.
Hamila and Twenty-fourth Streets NE.	1230			Apr. 20, 1915				with fat wider or represent
Ros	021 022 022			do do May 17, 1915	June 25, 1915	3, 364. 60	4, 135, 40	Not yet confirmed. Continued to Nov. 15, 1915.
4 4000								

Condemnation cases—Continued.
ALLEYS.

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To a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a	Court	1000	V. 19 15 15 15	Ver	Verdict.	
TOGSTIGHT	No.	No.	Vertuct med.	<b>Damages.</b>	Benefits.	Action on vertice.
Bquare 2615 Equare 2627 Equare 2637 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2631 Equare 2631 Equare 2631 Equare 2631 Equare 2632 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636 Equare 2636	86 1006 1006 1006 1008 1008 1008 1008 10	Mar. 22, 1910 Feb. 5, 1913 Jan. 27, 1914 do. June 30, 1914 Oct. 12, 1914 Nov. 3, 1914 do. Go.	Mar. 22, 1910 Feb. 6, 1913 Jan. 27, 1914 June 29, 1914 S879, 32 S1, 2056, 00 June 30, 1914 June 29, 1914 June 30, 1914 June 30, 1914 June 30, 1915 Nov. 3, 1914 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1915 June 30, 1	\$870.32 340.31 1,079.86 1,944.28 1,596.32 1,596.55	\$1,205.00 613.59 1,171.51 2,316.88 1,804.48 1,708.37	Nat. 22   1910   Proceeding quashed Jan. 16   1915, land acquired by purchase.   Proceeding quashed Jan. 16   1914.   Proceeding quashed Jan. 16   1914.   Proceeding quashed Jan. 16   1914.   Proceeding quashed Jan. 16   1914.   Proceeding quashed Jan. 16   1914.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners Jan. 16   1915.   Case discontinued by order commissioners Jan. 16   1915.   Case discontinued by order commissioners Jan. 16   1915.   Case discontinued by order commissioners Jan. 16   1915.   Case discontinued by order commissioners Jan. 16   1915.   Case discontinued by order commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners order Apr. 13, 1915.   Case discontinued by commissioners or caper Apr. 13, 1915.   Case discontinued by commissioners or caper Apr. 13, 1915.   Case discontinued by code caper apr. 14   Case discontinued by code caper apr. 14   C

# REPORT OF THE SUPERINTENDENT OF TREES AND PARKINGS.

WASHINGTON, D. C., August 16, 1915.

SIR: I have the honor to submit my thirtieth annual report dealing with the operations of the trees and parkings office for the fiscal year ended June 30, 1915.

### PLANTING.

The systematic planting of young trees continued to be the most important feature of our work, the necessity being recognized to shade all improved streets as rapidly as the surface condition justified. Our efforts along this line resulted in the transplanting of 3,388 trees from the nursery to their permanent position on the streets, an increase of 1,101 trees over last year's record. Of the number planted 3,347 were set at the curb line to extend the system and fill the vacancies in the established lines. A few streets are provided with parking rows such as Massachusetts Avenue and Sixteenth Street, and 37 trees were accordingly planted to maintain these lines. In addition three were planted in school grounds and one in the grounds of the Anacostia Pumping Station.

This planting continues to be a costly item in view of the existing high price of labor and materials of all kinds and the necessity for longer hauls due to the rapid growth of the city; especially is this the case in replacing trees in the established lines.

planted.

		commis- opriation.	Paid for by other depart-	Whole	_
Kind of trees.	Fall season.	Spring season.	ments, spring and fall seasons.	deposit, spring and fall seasons.	Total.
Elm	225	129	30	78	462
GingkoLindens		14 90		5 10	72 169
Maples: NorwaySilver	383	512	10	9	914
Sugar	101	146	46	25	318
Pin Red	38	348 26		75	642 64
Poplar, Athenian	478	257		6	741
Total	1,571	1,523	86	208	3,388

### NURSERIES.

Coordinate with tree-planting work, a large number of seedlings of various kinds, as hereinafter enumerated, were transplanted from the seed beds to nursery rows at the E Street nursery. This work shows an increase of 1,030 trees over that of the corresponding period last year. These trees will be ready for street planting in about four years and, included with the present available stock, represents an estimated total of from 25,000 to 28,000 young trees, which may be drawn upon for street needs during the next four years. The seed beds in the nursery are fully stocked with seedlings which are coming on to take the places of those transferred to the streets. No seedlings were transferred to the nursery rows at the Georgia Avenue nursery as it is very uncertain as to when the ground now used as a nursery will be needed for the grading of the proposed Gallinger Hospital, and seedlings planted in the nursery rows will require the use of ground for about four or five years. In view of this fact an arrangement has been effected with the Board of Charities, which was approved by the District Commissioners, whereby a considerable tract of ground on Reservation 13 north of the engineer's house at the Washington Asylum has been transferred to this office for nursery purposes. Seedlings have been transferred to nursery rows on part of the ground recently turned over to this department, and these trees will be large enough to be planted on the streets of the city in 1919 and 1920. In a few years all

the trees for street planting can be obtained from one nursery, as those now planted in the Georgia Avenue nursery with a few exceptions are too large to be planted.

The following seedlings were transplanted from seed beds to nursery rows during the year:

Elm.	400
Gingko Linden.	550
Linden	630
Maple:	
Maple: English Sycamore	
Norway. Oak, red	
Usk, red	
Total	6 620

### TRIMMING.

Little progress was made in the general trimming of street trees. A great many individual requests for the trimming of trees throughout the city were received, especially for the shaping of trees that had been disfigured by storms, and these were given prompt treatment and at the same time any others in the immediate vicinity requiring similar treatment were given attention, thereby preventing another trip to the same locality. During the past spring all the low limbs that interfered with pedestrians and vehicular traffic were removed in the northwest, northeast, southwest, and part of the southeast section. Owing to the lack of funds it was not found practicable, without neglecting other urgent work, to accomplish much general trimming, but it is a matter of importance that all the larger trees should receive this attention annually. The silver maples are responsible for the largest outlay in trimming, this variety being planted years ago to the exclusion of many kinds whose subsequent use has proven more advantageous.

### REMOVING.

The following table shows the kinds and number of trees removed during the year. Careful attention is always given to removal requests and many growths are saved each year by suggested changes in the location of driveways, vaults, etc. During the past spring all dead trees were removed in the northwest, northeast, southwest, and part of the southeast section. Many of the trees removed during the early part of the fiscal year were replaced and are included in the planting listed above.

# Statement of trees removed during the year.

2	Oaks:	
16	Pin	181
2		4
3		101
3	Spanish water	1
140		10
		īĭ
-6		-ī
4		ī
ĵ	Poplars:	-
141		25
	Athenian	33
	Carolina	340
		16
412		ĩ
		ī
		272
	Willow weening	-:2
	Total	2 628
12		•
	16 2 3 3 140 27	Pin

The cost of removing the above trees was paid from the following appropriations:

	1T005.
Streets, District of Columbia, 1915, parking commission	2, 052
Streets, District of Columbia, 1915-16, parking commission	133
Appropriations of other departments	419
Appropriations of other departments	24

Total Digitized by GOUXIC 2, 628

# Causes of removals or death.

Dead, decayed, and dangerous	1.792
Dead, decayed, and dangerous	276
To relieve excessive shade	21
Street improvements, driveways, buildings, etc	409
Improvements of parking	1
Improvements of alleys	4
Accidents and storms	94
To accommodate lamps	7
Injurious to curb trees	20
Injurious to private property	4
Total	2, 628

Of the dead trees included in the above, it was ascertained that 138 were destroyed by illuminating gas, 24 by horse bites, 965 by drought, 17 by salt water, 41 by abnormal moisture supply, 29 by the mutilation of roots, 18 by being girdled, 13 by being filled around, 19 by insects, 2 by root exposure, 1 by fire; the remaining were unexplained.

### Trees:

At the curb removed	2, 441
In the parkings removed	121
In the sidewalk removed	30
In school grounds removed	4
In roadways removed	12
In alleys removed	4
On private property	16
F FF	
m . 1	

### SPRAYING.

1. Leaf-eating insects.—At the beginning of the fiscal year many trees were severely infested with insects, i. e., tussock moth and webworm, and it was necessary to spray the Norway and silver maples and also the sycamores throughout the months of July, August, and the first part of September to prevent their complete defoliation. The entire southeast section was covered and all streets in the other sections that were the most severely attacked. In addition to the spraying, the egg masses of the tussock moth were burnt from the trunks of many trees throughout the city and in that way prevented the hatching out of a great many insects that would have infested the trees later. In April of this year all the elms on the city streets were sprayed with arsenate of lead to prevent the destruction of foliage of this variety of tree by the elm-leaf beetle. This work was undertaken as soon as the foliage had obtained a normal size and before the insects made their appearance. If this office does not attempt to spray until the insects make their appearance many trees are completely defoliated before they can be given attention with the present equipment on hand.

Immediately after the elms were sprayed all the lindens were given similar treatment to prevent their defoliation by the webworm. In June it was found that the elm-leaf beetle was making its appearance on some of the elms and nearly all were again sprayed. Splendid results were obtained in checking their rayages.

again sprayed. Splendid results were obtained in checking their ravages.

The work of spraying the street trees of Washington for the extermination of leaf destroying insects has given very satisfactory results, and it is worthy of mention that the trees are in very good condition at this time, which is the season when the pests make their appearance. Timely action by this department during the past spring prevented the spread of insects, and very few complaints were registered at the office. If funds could be spared for the purpose, this office would attempt to spray all the trees on the streets in the early spring, and it is believed the trees in the city would then be freed from insects.

The following table shows the extent of spraying for leaf-eating insects during the

J	•		
Ash	91	Maple:	
Chestnut, horse	210	Norway	3, 514
Elm	15, 466	Red	43
Gum, sweet	<b>63</b>	Silver	16,844
Linden	7,607	Sugar	155
Locust, honey	230	Sycamore	218

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2, 542
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5, 901 2, 542  5, 458
ions:
Trees.
0.780
0, 780 4, 678
5, 458

The unit cost of spraying (labor and material), \$0.076.

In addition to the above spraying, the trees on the grounds of the Columbia Institution for the Deaf at Kendall Green and those at the United States Marine Barracks, D. C., were sprayed. The cost of this work was paid for by the Columbia

Institution and the United States Government, respectively.

2. Scale insects.—A number of the best varieties of trees on the streets, namely, pin and red oaks, Norway and sugar maples, and oriental planes, are badly affected with scale insects. During the previous fiscal year it was possible to spray for the destruction of this insect, but during the fiscal year 1915 it had to be neglected because funds could not be spared for the purpose. In my estimates for the fiscal year 1917 I have estimated for a sum to carry on this work, and if the same is provided many of the best street trees of the city can be saved. The small amount of spraying for scale insects has been very satisfactory and it should not be neglected.

### TREE SURGERY.

During the first half of the fiscal year very little work on the cementing of cavities in the trunks and limbs of trees was undertaken, but a great many limbs and wounds

were given attention throughout the city during the entire year.

The operation of cementing trees consists in the removal of all decayed and diseased tissues until nothing but the sound wood remains and in some cases it is necessary to remove some of the sound wood to remove an existing discoloration of fungus. This fungus is really the germ and if not removed continues its work of decay. After the cavity is carefully and thoroughly cleansed the walls are covered with creosote, the gas from which permeates the wood and destroys all living germs, serving as an insecticide as well as a fungicide. Gas tar is then applied to the interior and left for some time. After this treatment the cavity is filled with cement.

### CULTIVATING.

The usual amount of cultivating of young trees was performed during the year, the entire city being covered the past summer, also again this spring. This work is absolutely necessary to insure good growth and allow them to derive the fullest benefits from rainfall.

### MOWING.

The work of mowing parkings progressed fairly well, it being deemed necessary to rid the city of as many weeds as possible. Attention was given to the maintenance and mowing of grass in front of the District Building, Union Station including the central islands of the Union Station Plaza, Center Market, Ashmead Place, public convenience station at Seventh and Pennsylvania Avenue NW., the parking around the Washington Circle, the park at Seventh and Louisiana Avenue, the slope at Twenty-second and Decatur Streets NW., the park areas at Eleventh Street and Massachusetts Avenue NW., the triangle at the intersection of Fourteenth Street and Colorado Avenue NW., and the Quarry Road entrance to the 200 Park.

In addition to the upkeep of the parkings stated herein, all the parkings in front of vacant lots on improved streets were given attention during the summer and the

past spring.

# TREE BOXES REMOVED.

During the fiscal year 1,105 old tree boxes were removed as the trees were large enough to do without their support. In a great many instances the boxes were in a dilapidated condition and gave the street an unsightly appearance.

### REGULATION OF TERRACES.

The regulation of terrace heights throughout the city is proceeding satisfactorily in spite of the fact that several applicants violated their permit by disregarding the terms set forth therein and constructed terraces of a height exceeding that allowed by this office. There were 702 applications received and permits issued during the year.

# RETAINING WALLS, FENCES, HEDGES.

At the latter part of February the additional work of keeping records and passing on retaining walls, fences, and hedges on the public parking was made a duty of this

department before a permit could be issued by the permit clerk.

In the case of retaining walls it is necessary to make an inspection to determine if the wall is necessary and to pass on the height. This to maintain a uniform condition

in a block.

This office passed on 19 applications for retaining walls, 204 for fences, 23 for hedges. A brief summary of the work performed by the office is as follows:

### Statement.

Inspections made on trees by officials other than the inspector	231
Inspections made on trees by the inspector	441
Terrace inspections.	1, 780
Retaining wall inspections.	45
Coping inspections	
Fence inspections	5
Issuance and execution of work orders	762
Locations visited in execution of work orders	3, 835
Official files acted on (letters prepared for signature)	521
Writing of indorsements on official files	558
Requests to the surface division for paving, etc	29
Pay rolls and special vouchers forwarded	51
Requisitions for supplies, repairs, etc	98
Transfer of appropriation vouchers.	40
Supply vouchers approved and recorded.	
Superintendent's recommendations originating here	53
Gas reports forwarded	21
Tage reports for wat upon	
Locations on gas reports.  Letters mailed to private individuals.	128
Detters maried to private individuals.	406
Replies to communications by postal cards	96
Preparation and submission of property returns	4
Coping permits issued	210
Norg.—It has been found necessary to make several inspections on applic for terraces, fences, hedges, copings, and retaining walls.	ations

ices, neages, copings, a

SUMMARY.	
Trees in streets, parkings, sidewalks, school yards, and playgrounds at the close of fiscal year 1914	102, 343
Net increase during 1915.	792
Trees in streets, parkings, sidewalks, school yards, and playgrounds at the close of the fiscal year 1915.	103, 135
Note.—In addition to the number removed above, 32 were removed from alleys, roadways, and private property but did not diminish number included in official count.	
Curb trees on streets at close of fiscal year 1914.  Net increase of curb trees during the fiscal year 1915.	101, 912 906
Curb trees on streets at close of fiscal year 1915	102, 818

Mileage of trees at close of fiscal year 1914.  Increase of mileage of trees, fiscal year 1915	579. 04 5. 14
Mileage of trees at close of fiscal year 1915	584. 18
Mileage of tree-planted streets at close of fiscal year 1914	289. 52 2. 57
Mileage of tree-planted streets at close of fiscal year 1915	292.09
Note.—Mileage is figured on the basis of 352 trees to the mile.	

There are in the city of Washington 52.785 miles of oak trees on the streets or 26.392 miles of streets having a double row of this variety of tree. Probably no city in the world can compare with this city in the mileage of oak-planted streets.

# Expenditures.

	Appropriation.	
	1915	1915-16
Maintenance of yard (including shoeing horses, repairs to wagons, repairs to tools, and the sharpening of same, etc.  Maintenance of nurseries and shops.  Cultivating young trees.  Irrimming street trees.  Improvement, care, and mowing of parkings.  Cementing cavities, treating wounds, and tree surgery.  Removing dead, decayed, and dangerous trees.  Miscellaneous repairs to boxes, etc.  Storm damage.  Lifting trees at nursery.  \$759.57	2,058.08 2,626.13 2,706.76 595.50 3,052.87 1.522.14	\$69. 2 133. 2 364. 9 407. 0 368. 4 51. 7: 284. 5 120. 0
Digging tree holes	111.75 2,002.00 105.75 34.69 39.75 503.14 2.50	21. 26
Single wagon hire for inspection work. 2,423.47  Spraying Brightwood and Reno Reservoirs for water department with copper sulphate for the destruction of alges.  Spraying trees for individuals on private property, secured by repayment.	2, 287. 22 14. 63 43. 00 5. 50	136.25 26.44 23.00
Total	30, 861. 63	2,006.07

# Materials, supplies, miscellaneous repairs, etc.

Streets, District of Columbia, 1915, parking commission:	
Arsenate of lead	<b>\$3</b> , 071, 25
Buggy and wagon findings and repairs, harness, etc	297. 45
Fertilizer and grass seed	<b>326</b> . 75
Forage	2, 134.06
Gasoline	223. 71
Leather straps	198. 75
Lubricants	41. 22
Lumber for tree boxes	
Lumber, miscellaneous	23. 42
Nails, bolts, screws, tin, and wire, etc	133.41
Paints, oils, and glass	174.56
Rope, twine, etc	<b>35</b> . 54
Tree guards, iron	1,650.00
Soap, castile	3,45
	_

or manifold of the brothest bulkering i,	<i>D</i> . 0.	Uð
Streets, District of Columbia, 1915, parking commission—Continued	1	
Spraying-machine accessories and repairs		<b>\$</b> 189. <b>23</b>
Stable and blacksmith supplies.	• • • • •	81. 55
Tools and agricultural implements.		234. 94
Car tickets		10.00
Fuel		61. 65
Boxwood plants		42.00
Hose.		49. 00
Auto-truck accessories and repairs		<b>4</b> 56. <b>2</b> 5
Steel, iron, horseshoes, and pads		192. 00
Gas tar and roofing felt		19. 85
Stationery, printing, furniture, and office supplies		<b>5</b> 05. <b>4</b> 6
Sundriee	• • • • •	13. 83
Total		1 400 00
I Utal	1	1, 492. 20
Streets, District of Columbia, 1915-16, parking commission:		
Forage		211. 14
Lubricants		32. 64
Lubricants. Spraying-machine accessories and repairs.		11. 85
	_	
Total	• • • • •	255. 63
<b>27</b>		
Charges against appropriation.		
	1915	1915–16
Soil secounts	\$204.60	
Electric current Traveling expenses (authorized)	40.74 11.02	
Paving tree spaces. Construction material reimbursable (cement). Audit expense (sudit No. 56892). Repairs to auto truck	533.82	
Andit expense (audit No. 56892)	42.04	
Repairs to auto truck	118.26	\$222.19
Repairs to office fixtures.  Material and labor to make 6 fire-hydrant reducers.	13.52 15.06	
Material and labor to lettering superintendent's buggy.  To 5 per cent of the compensation of E. S. Dawson authorized under ED-101223/3		
To 5 per cent of the compensation of E. S. Dawson authorized under ED-101223/3		
Total	1,019.97	222.19
By appropriation, "Streets, District of Columbia, 1915, parking mission".  By repayment to above appropriation.	com- \$4	1, 930. 00 1, 446. 31
2) 10pu) = 020 to 100 to uppropriation		
Total	4	3, 376. 31
Labor	3	0, 861. 63
Materials	1	1, 492. 20
Charges against appropriations	-	1, 019. 97
To balance of above appropriation unexpended		2. 51
Total		3, 376. 31
Of the \$5,000 made immediately available by act of Congress and ca as appropriation, "Streets, District of Columbia, 1915–16, parking mission"	com-	5, 000. 00
By repayment to said appropriation.		24. 60
Total		5, 024. 60
Labor		2, 006. 07
Materials.		255. 63
Charges against appropriation		222. 19
Unexpended balance		2, 540. 71
•	-	

5, 024. 60

Expenditures from miscellaneous appropriations, exclusive of parking commission.

		Through r	enevment	
Appropriation.	Direct		repayment.	
	charge.	1915	1915 and 1916	
Miscellaneous trust-funds deposits	\$739.13	\$290.09		
Electrical department, District of Columbia, 1915, lighting.	17.75	\$290.09 4.20		
Electrical department, District of Columbia, 1915, lighting. Public schools, District of Columbia, 1915, repairs to buildings. Construction of suburban roads and streets, District of Columbia, 1914, Illinois Avenue and Kennedy Street NW. Construction of suburban roads, District of Columbia, 1915. Condition and Immediate Plant Str. No. 1915.	45. 50		·····	
1914, Illinois Avenue and Kennedy Street NW	14, 18 49, 50		<b> </b>	
Grading and improving Waclarke Place SE., Nichols Avenue to				
Grading and improving Waclarke Place SE., Nichols Avenue to Raleigh Street. Paye Nineteenth Street between Kalorama Road and Biltmore	67.00			
Street	21.75	7.00		
Street Quarry Road, entrance to Zoological Park Elimination grade crossings and improvement to Plasa	1,060.08 107.94	115.41 379.02		
improvements and repairs. District of Continuia, 1914:	i	l .	1	
Assessment and permit work Repairs to streets	53.50 41.75			
Georgetown schedule Improvements and repairs, District of Columbia, 1915:	<b>349</b> . 75	8.40		
Assessment and permit work	1,311.94	95.34	<b> </b>	
Assessment and permit work Repairs to streets Georgetown schedule	369.44 27.31	57.28		
Northwest schedule	1.13	<b> </b> .		
Northwest schedule. Grading streets, alleys, and roads. Pave P Street NW, between Rock Creek and Twenty-eighth	121.50	217.05		
Street, special Repairs to suburban roads. Water department, District of Columbia, 1915, high service. Sheiters, larmers' produce market. Maintenance, Municipal Building, District of Columbia, miscella-	86.50	15.73		
Water department. District of Columbia, 1915, high service.	6.00	45. 15	\$24,60	
Shelters, larmers' produce market.	22.87	7.90		
Maintenance, Municipal Building, District of Columbia, miscella-		11, 29		
Maintenance playgrounds.	10.75			
Maintenance, Municipal Building, District of Columbia, miscella- neous.  Maintenance playgrounds.  Purchase order, United States Marine Corps, Marine Barracks, Dis- trict of Columbia.		184.33		
Total	4, 531. 87			
1 copyist, 308 days, at \$3		-	924.00	
Sums expended during the year for the purchase and mo wagons, together with amounts paid for single and doubl	intenance	of horses,	carts, and	
[These items included in material li	_	ina prow-sc	<i>4//6 /88</i> 0.	
		noskina		
Paid from the appropriation for streets, District of Columnission:	HOIR, 1910	, barking		
Horses, forage, wagons, and miscellaneous equipme Single-wagon hire, 584‡ days, at \$2.25 Double-wagon hire, 901 days, at \$4 Three-horse plow team, 1 day, at \$6		1. 234. 69	<b>\$</b> 2, 421. 51	
Three-horse plow team, I day, at \$6	····· <u>·</u> ··_	6. 00	4, 844. 69	
Total			7, 266. 20	
Paid from the appropriation for streets, District of Coluning commission:				
Horses, forage, wagons, and miscellaneous equipme Single-wagon hire, 90‡ days, at \$2.25 Double-wagon hire, 68 days, at \$4		. \$204. 19	211.14	
			476. 19	
Total		·	687. 33	
My acknowledgements are due to the employees of the plished by the office during the year.			rk accom-	
Very respectfully,		T. LANH	AM.	
Capt. W. D. A. Anderson,  Corps of Engineers, United States Army,  Assistant to the Engineer Commissioner, Distri	_	rees and P		
A constant to the Ringmaph Lightnian on the Photon	ci oi Colu	MDM.		

# REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT.

WASHINGTON, September 16, 1915.

SIR: I submit the following report of operations of the water department for the

fiscal year ended June 30, 1915: I succeeded the late W. A. McFarland as superintendent on March 26. The death of that accomplished engineer on March 17 deprived this department and the District of Columbia of the services of an able officer whose good work will stand as his most lasting memorial.

This department has again exerted every effort to still further curtail the waste of water, with the gratifying result that the per capita consumption and mean daily

rate have both been reduced.

The extensive installation of meters, systematic underground surveys for the detection of leaks and wastes, careful inspection of services, and suggestions to large consumers as to how they may economize in the use of water is bringing the department each year nearer to a per capita consumption of 130 gallons per day, considered reasonable and ample. The changes in these rates since 1896 are shown on the accompanying diagram.

In connection with the Great Falls project now under consideration, it is to be hoped that the importance of taking steps to insure the availability of an additional supply of water for the District, not later than 1930, will be considered and provided for. By that time the population of the District will be about 500,000 and the capacity

of the present conduit reached.

The financial transactions for the year will be found in detail in the report of the division of accounts and stores. From all sources there was available for the needs of the department during the year the sum of \$763,020.14. The cash expenditures for the year amounted to \$619,868.85, and the outstanding net liabilities, including balances of appropriations not available on June 30, 1915, \$48,670.90, leaving a working balance of \$98,923.40. The total cost of work done during the year as distinguished from cash expenditures (the difference being due to decrease in material in store) was \$644,080.74, of which 42 per cent was for new work in extension of plant, 41 per was \$044,080.74, of which 42 per cent was for new work in extension of plant, 41 per cent for operation, 13 per cent for general repairs, and 4 per cent for replacements. The cost of work for the year was more than \$100,000 less than for 1914, due to a notable decrease in water-main extensions, thus increasing the percentage cost of operation. There were laid during the year 60,023 feet, or 11.4 miles, of mains at a total cost of \$102,522.04. This brings the total length of mains in the distribution system up to 3,172,453 feet, or 600.8 miles. During the year 6,273 water meters were installed to a cost of \$71,050.02 bringing the total number of extension are not set of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 per cent of \$100.00 installed at a cost of \$71,950.93, bringing the total number of meters in use on June 30 up to 48,411 Of the 68,365 services in use, all are now metered except 19,954.

The erection of a new building in the south property yard at the District pumping station, designed to accommodate an up-to-date auto repair shop and brass foundry,

was completed at a cost of \$18,376.85.

The pitometer division, engaged in underground surveys for the detection of leaks and wastes, located and stopped leakage at the rate of 1,828,800 gallons per day, and accomplished other interesting results fully stated in the annual report of Mr. Lanham, in charge of this work.

Water-main extensions and nearly all other outside construction work was done by

the construction division, now under Engineer F. W. Albert.

The lack of activity in suburban real estate development during the year resulted

in few requests for water-main extensions outside of the city limits.

The change by the railway company from overhead to underground construction in Nichols Avenue SE, made it necessary to replace old 6-inch main under car tracks from Talbert Street to Good Hope Road with 8-inch mains, one on each side of tracks. In connection with this work connections were made with all side mains and all house services changed to connect with new mains.

In Fourteenth Street, between Pennsylvania Avenue and F Street, and at Fourteenth and G Streets NW. and Fourteenth and Water Streets SW. all old mains were abandoned and new mains laid outside of the right of way of railroad company's

tracks.

By far the most important job of water-main construction work accomplished during the year was the laying of 1,936 feet of 36-inch trunk main on line to Brightwood Reservoir in Sixteenth Street and Meridian Street NW. This work was done by a force of 95 men in 45 days and involved the recovery of 1,603 feet of 36-inch pipe laid on old diagonal line in Fourteenth Street Road. While this work was in progress it was necessary to supply the second high service for a period of 11 days by direct pumpage.

At Brightwood Reservoir a most unusual situation developed while the south basin was empty for cleaning. Some of the cement floor slabs were observed lifted out of place by the leakage of water from the north basin beneath the division wall. The 18-inch open terra-cotta drain constructed under the division wall to intercept and carry off all leakage was found to be entirely useless due to accumulation of deposit from the cement walls, thus causing the pressure under the floor of the empty basin. A new cast-iron 20-inch open-joint drain was laid along the south edge of the division wall with a sufficient grade to carry off all leakage, and a curtain wall was constructed where necessary beneath the edges of the division wall. Sixteen new floor slabs 15 by 15 by 1 foot thick were laid to repair the floor of the south basin. Concrete plugs were placed at corners of old slabs wherever leaks were observed, and all joints were filled with waterproofing compound, including expansion joints at division walls. While this work was in progress the reservoir was out of service and the second high territory was supplied by direct pumpage.

territory was supplied by direct pumpage.

Besides the work heretofore mentioned, the construction division hauled all material used by the department from the freight yards to the property yards of the department and thence to the work. Operated and cleaned 8,148 valves; made 49,783 inspections of fire hydrants; repaired 1,466 fire hydrants; painted 3,114 fire hydrants; cleaned horse fountains 4,781 times; erected 269 new fire hydrants; and performed numerous other duties reported in detail in the report of Engineer Albert herewith.

Following are the reports of divisions of revenue and inspection, tests and experiments, accounts and stores, and steam engineering and shops as submitted by the respective division heads.

The employees of this department have worked honestly and faithfully, and I wish

to record my appreciation of the loyal support they have given me.

J. S. GARLAND, Superintendent Water Department.

Capt. R. G. Powell,
Corps of Engineers, U. S. Army,
Assistant Engineer Commissioner, District of Columbia.

### Engineering and Construction.

Sir: I have the honor to submit the following report of work done by division D, engineering and construction, for the fiscal year ended June 30, 1915, and as incorporated in the reports of H. Beckett, assistant engineer, in charge of general engineering; A. R. Speare, chief inspector of valves, in charge of the valve division; S. H. Harding, foreman in charge of laying mains, etc.; G. von Dachenhausen, foreman in charge of stables; H. Saunders, in charge of greenhouse, flowers, and lawns; and H. C. Fowler, in charge of telephone switchboard.

Two thousand eight hundred and forty-five tons of cast-iron pipe, 80 lengths of terra-cotta pipe, 84 tons of cast-iron fittings, 34 tons of fire hydrants, 152½ cubic yards of gravel, 296 cubic yards of sand, 322 cubic yards of broken stone, 136 cubic yards of soil, 291,400 brick, 10,335 asphalt blocks, 585 barrels of cement, and 231 wagonloads of freight were hauled. Miscellaneous repairing and painting of vehicles was done.

Total number of water mains laid, ranging in size from 1½ to 36 inches  New water mains laid in place of old	120
Water mains abandoned.	11
Water mains, pipe recovered	8
Water mains lowered	12
Number of connections to private premises, 3 to 6 inches in size	19 55 <b>3</b>
Valves removed and abandoned.	201
New valves installed in place of old	51
Air valves installed	47
Air valves removed	647
Valve casings instanted.	186
Buffalo boxes installed	39
Buffalo boxes removed	103
Valve casings adjusted to grade	42 269
Fire hydrants erected. Fire hydrants removed.	184
New fire hydrants erected in place of old	181
Fire hydrants adjusted	51
( '	

46

Replaced broken lengths of 36-inch United States Government main with new in First, between N and O Streets; First, between I and K; First, between K and L (3); First, between L and M; First and I streets; First and M streets (2); and First, between M and N Streets, southeast section. Removed ice from 12-inch mains, etc., on the Benning Bridge, SE. Valves operated and cleaned.

Number plates placed in valve casings.

Mains flushed (points where circulation is poor and routine flushing does not keep water clear).

Times dividing lines between services were examined. 8, 148 1,657 Times dividing lines between services were changed.....

Horse fountain erected. Times horse fountains were cleaned..... 4,781 Public hydrants installed (new locations).
Public hydrants installed in place of old.
Public hydrants repaired.
Sanitary fountains erected.
Sanitary fountains repaired. 19 301 10 Sanitary fountains cleaned
Sanitary fountains removed and replaced with new..... Lead connections made with stock..... 105 Service pipes changed from old to new mains.
Service pipes repaired.
Intersections located. 163 695 795 City alley squares located..... 5 County alley squares located..... 84

Cleaned fountain at Union Station Plaza 22 times during the year.

North basin of Brightwood Reservoir was cleaned 5 times and sprayed with copper sulphate twice. South basin was cleaned 4 times and sprayed with copper sulphate

North basin of Reno Reservoir was cleaned twice and sprayed with copper sulphate

once. South basin was cleaned once and sprayed once.

Samples of water were taken from each reservoir once a week and delivered to the chemist at the filtration plant for examination.

Intake tanks, gutter traps, and gate chambers at Brightwood Reservoir were cleaned out once a week.

Erected 500-gallon tank for water supply to Camp Pleasant, Fifty-ninth and Eads

Streets NE. Four hundred and ninety-seven surveys were made for proposed extension of water

mains, connections, fire hydrants, etc.

The following is a brief description of a few jobs of interest completed during the

The old 6-inch main under the car tracks in Nichols Avenue SE., from Talbert Street to Good Hope Road SE., was replaced by 8-inch mains, one on each side of tracks. This necessitated connections with all side mains and the changing of all house services from old to new mains. This work was necessary owing to the change by the railroad company from overhead to underground system.

In Fourteenth Street, between Pennsylvania Avenue and F Street, and at Fourteenth and G Streets NW., owing to new railway tracks, all old mains in line of tracks

were abandoned and new mains laid outside of right of way.

were abandoned and new mains laid outside of right of way.

Owing to the filling and abandoning of Fourteenth Street Road near Sixteenth Street NW., it was necessary to change the location of the 36-inch trunk-line main to Brightwood Reservoir. A survey was made and line selected from existing main at Fourteenth and Meridian Streets, west to Sixteenth Street, and north on Sixteenth Street to intercept old main, the old diagonal line between these points to be abandoned. The department had in stock only 684 feet of 36-inch pipe and the new line required 1,936 feet. The 684 feet of stock pipe was laid and trench back filled. Water was then shut off in the old mains and temporary caps placed, pipe recovered and relaid to complete the new line. While this work was in progress it was necessary to supply the second high territory for a period of 11 days by direct pumpage. The entire work was done by a force of about 95 men in 45 days.

At Minnesota and Deane Avenues NE. it was necessary to lower the 16-inch main

At Minnesota and Deane Avenues NE. it was necessary to lower the 16-inch main to permit new sewer construction. This main was lowered about 18 inches at point where sewer was to cross without removing the water pressure.

At Brightwood Reservoir, while the south basin was empty preparatory to cleaning, some of the concrete floor slabs were lifted out of place by the leakage of water from the north basins beneath the division wall. A 12-inch open-joint terra-cotta drain had been placed under the division wall when reservoir was built to prevent such an occurrence, but this was entirely obstructed by a deposit from the cement walls, thus allowing the pressure to get under the floor of the empty basin. A new castiron open-joint drain was laid at the south edge of division wall, center of pipe at starting point being made on same elevation as the bottom of the footing course, with a fair fall to the west. A curtain wall was constructed where necessary beneath the edges of division wall, and it was necessary to lay 16 new floor slabs 15 feet by 15 feet 1 inch, conforming with the old. At the corners of the old slabs where leaks were observed concrete plugs from 10 to 30 inches square were placed. All joints were filled with waterproofing compound. The expansion joints at the division walls were also filled with this material. While this work was in progress the reservoir was out of service and the second high territory was supplied by direct pumpage.

Three field parties have been engaged throughout the year on the above fieldwork, making 1,595 visits to work in progress to get locations and turning in final notes for

595 jobs.

On November 7, 1914, at 1 a. m., a capacity test of the down-town water system was held at the request of the Fire Underwriters' Association of the District of Columbia. This test was for the purpose of demonstrating to the governing board of the above association the capabilities of the water system in the down-town section. The test was made under the direct supervision of the late superintendent, W. A. McFarland, and assisted by Messrs. Garland, Lanham, and Albert, and proved very satisfactory.

The following items are quoted from the report submitted by Mr. Fowler, in charge

of the water-department switchboard:

rec	OΓ	α	<b>e</b> 0	ı:
	т	_	_ 1_	

ocoraoa.				
Leaks				1,577
Fire alarms	. <b></b> .	<b></b>		737
No-water complaints				32
Low-pressure complaints				5
Messages carried by messengers				199
Telephone connection				115 490
1 Cicpuono Commocava			• • • • •	110, 100

The telephone messengers' service was discontinued on April 15, 1915. All record of leaks and movements of the leakmen are kept by the telephone operators at the department switchboard.

Mr. Saunders, gardener, reports that the following gardening work was done during

the year:

Propagated and raised varieties of flowers for flower beds; planted flower beds and window boxes at Bryant Street pumping station; kept lawns cut, edged, and watered; trimmed and cultivated shrubbery on slope in rear of stables; cleaned lake and planted water lilies; planted roses on fence at Bryant Street pumping station.

Cut, watered, and edged lawns at Reno and Brightwood Reservoirs and at Anacostia

pumping station.

Statement of water-main account for the year ended June 30, 1915, showing various sizes, and number of feet laid of each size:

	Linear fee		
36-inch24-inch		2, 009 15	
20-inch.		2, 024	
16-inch		1, 373	
12-inch		5, 550	
Total trunk mains		8, 96	
8-inch		46, 86	
6-inch			
4-inch		1, 974	
3-inch		863	
Total laid (11.4 miles)	-	en 021	

Total length of water mains in service at present time, 3,172,453 feet, or 600.8 miles. During the year 7,973 feet of main of various sizes were abandoned.

FREDERICK W. ALBERT, Engineer.

To the Superintendent, Water Department.

# Plans, Estimates, and Tests.

SIR: I have the honor to submit the following report of work done by division E, plans, estimates, and tests, for the fiscal year ended June 30, 1915:

The work of the division is divided under two heads, "Tests and experiments," in charge of H. D. Yates, and "Miscellaneous drafting," in charge of C. P. Heins.

Report on the work performed by these subdivisions will be taken up separately

and in the order indicated.

The subdivision of "Tests and experiments" is charged with testing and correcting the measuring apparatus used by the department; with making accuracy tests of all water meters used in the District of Columbia; with purifying the oil removed by the waste-cleaning machine; with making special tests of boilers and machinery as called for; with figuring the daily pumpage, consumption, station duty, etc., and with keeping necessary records.

Special tests made include duty trials of all of the pumping engines at the pumping station; a determination of the steam consumption of the 50-kilowatt and 125-kilowatt generating sets; an evaporation and efficiency test on boilers Nos. 3 and 4; accuracy tests of a CO<sub>2</sub> recording instrument; and proportional flow tests for the information

of the Geological Survey.

Miscellaneous tests include the following: Tests for accuracy, water meters { to 6 inches in size, 9,380; valves, ½ to 24 inch sizes, tests for leaks, 849; corporation cocks and curb cocks, ½ to 2 inch sizes, tests for leaks, 427; fire hydrants, tests for leaks, 228; and pressure gauges, tested and corrected, 135. Also made accuracy and durability tests of small-sized water meters, acid and fluid tests of grease, strength tests of paper, tests of Venturi meter recorders and recording pressure gauges, tests of automatic measuring tanks, check valves, gauge cocks, etc., set up recording pressure gauges on fire hydrants, tested and adjusted pressure-regulator valves, and overhauled Venturi meters, CO<sub>2</sub> recorder, and other testing and measuring apparatus installed in the pumping station.

Accuracy tests of the 5,000 1-inch Worthington water meters furnished under contract during the year were finished March 10, 14 days after the last shipment of 1,000

meters was received.

During the year there were 988 gallons of oil recovered from the material passed

by the waste-cleaning machine and rendered fit for use in oil cups.

All of the coal burned at the pumping station during the year was bituminous coal and was purchased on the ash, moisture, heat-unit basis. Samples were collected from each delivery, which was usually a 300-ton lot, and forwarded to the Bureau of Mines, where all tests were made. The analyses averaged 2.4 per cent moisture "as received" and 17.75 per cent volatile matter, 72.36 per cent fixed carbon, 1.66 per cent sulphur, 10.1 per cent ash, and 13,948 British thermal units per pound, on the

dry-coal basis.

The total pumpage for the year was 8,874,210,000 gallons, which is 327,417,000 gallons less than in 1913-14. The cost of operation was \$48,950.84, making the total gallons less than in 1913-14. The cost of operation was \$48,950.84, making the total gallons less than in 1913-14. operative cost of pumping 1,000,000 gallons of water into the mains \$5.32. is approximately 5 per cent more than in 1913-14 and is in part due to an increased dynamic head against pumps and in part to increase in the items of coal, supplies, and repairs, the other items, salaries, entering into the operative cost, showing a reduction. The cost of coal was \$3.52 per ton, which was 17 cents per ton more

than in 1913-14.

The station duty for the year was 70,051,487 foot-pounds per 100 pounds of coal. This is 5.22 per cent less than the duty obtained during the preceding year and represents an annual loss of 295.9 gross tons of coal. This loss is in part due to a diminished amount of work done by the first high-service pumping units (which pump on direct service), in part to an increased amount of work by the second high-service pumps, and in part to the poor condition of the coal burned during the latter part of the first half of the year and throughout most of the second half, due to distributing "transferred" coal in comparatively large quantities to bunkers, and to the frequent occurrence of fires therein.

Reports on all special tests and monthly statements showing the pumpage, consumption, mean water pressure, force of draft entering and leaving economizers and at base of stack, steam at boilers, mean temperature of outer air, boiler room, water in mains, water entering economizers and boilers, and gases entering and leaving economizers, vacuum pressures, foot-pounds of work by engines and generators, coal burned, station duty, per cent of CO<sub>2</sub> in flue gases, etc., have been submitted. Reports were also made on the performance of water meters on the endurance test; on the performance of the Simplex meters at the Anacostia pumping station; on the selection of suitable centrifugal pumping units for installation at the District pumping station, and

on methods used in sampling coal. Also submitted for consideration two diagrams showing, respectively, the results of the duty trials of the pumping units and the monthly and annual duties obtained during 1908 to 1914 inclusive, together with memoranda covering same and with recommendations tending to improve the economic efficiency of the pumping station.

The accompanying tabular statements show the sizes and makes of all private and

The accompanying tabular statements show the sizes and makes of all private and municipal water meters tested during the year; the results of duty trials of all pumping engines at the pumping station under every-day working conditions; the pumping

record for the year, and operative cost of pumping.

Cost of operating pumping engines at the District pumping station during the year ended June 30, 1915.

Operating expenses:	
Salaries, 1 chief steam engineer, at \$1,750 per annum;	
3 steam engineers, at \$1,100; 3 assistant steam engi-	
neers, at \$875; 3 firemen, at \$875; and 4 oilers, at	
\$610 (less deductions on account of leave) \$10, 313.10	
Miscellaneous per diem labor, substitute engineers,	
substitute fireman, boiler cleaners, steam fitter,	
electrician, helpers, and laborers	
	\$17, 564.00
Coal, 12,875,716 pounds bituminous coal, at \$3.52 per ton (cor-	<b>4</b> 20,000
rected for deductions on account of British thermal units and	
excess ash).	20, 178.38
Supplies, cylinder oil, engine oil, crank case oil, grease, waste,	_ ,
packing washers, lard oil, and graphite	4, 936.73
Repairs to pumps, engines, boilers, including grates:	
Per diem labor	
Per diem labor	
	6, 271. 73
Total cost of operation	48, 950.84
Total pumpage for the year, without allowance for slipgallons	8, 874, 210, 000
Greatest amount numbed in one day (July 27)dodo	27, 010, 100
Least amount pumped in one day (May 30)do	19, 378, 000
Average per daydodo	24, 312, 900
Average dynamic head against numbs, in feet	121.85
Gallons pumped×8.34×100×dvnamic head	
Duty= Gallons pumped ×8.34 × 100 × dynamic head Total fuel consumed.	<b>70, 051, 4</b> 87
Cost of fuel, pumping 1,000,000 gallons 1 foot highcents	1.80
Total operative cost of pumping 1,000,000 gallons 1 foot highdo	4.37
Total operative cost per 1,000 gallons pumpeddo	0. 532
Tomi obciento con bor 1,000 Periore barriboa	0.00

Note.—The above items of salaries, supplies, and repairs were furnished by the clerical division. The pumpage is figured from plunger displacement, without allowance for slip. The aggregate slip of all pumps during the year, based on pitometer determinations, was 7.74 per cent of the total displacement. The average dynamic head is figured from the total work done by pumping engines and generators. The fuel consumed is the total coal burned excluding the heating system. The cost of heating—467,705 pounds of coal—was \$730.25.

Tests of private and municipal water meters (excluding meters on endurance test) during the fiscal year ended June 30, 1915.

	Size, in inches.									
Meter.	1	ŧ	1	11/2	11	2	3	4	6	Total.
American Crown Empire Enarc		2 2 7	5 4 2	i	7 2 11	4 4 5	8 1 1		1	17 27 13 28
Gamon Gem Hersey Hersey detector Keystone King Lambert Nash Niagara Pittsburgh disk	2,048 448 20 105 32 3	1 110 7 1 47 123 26 33	6 2 26 114 19 47	1	13 1 3 10 55 18 15	5 7 1 15 51 17	2 6 1 2 6 19	1 5		2, 186 2, 186 2 466 212 400 87
Standard	1	13 11 2 13	17 22 1 17 282	8	9 16 6	5 3 1 8	4 7	8 2 25		5, 23 9, 19

The subdivision of "Miscellaneous drafting" is charged with work of preparing all plans and estimates and giving out miscellaneous information, correspondence, records, and reports. The detail of the work performed follows:

1. Drawings and tracings made	748
2. Projects made	144
3. Files forwarded to the assessor	
4. Cards forwarded to the assessor.	265
5. Postings of engineers' notes on 50, 100, and 300 foot scale maps and map tracings.	1 010
6. Communications written.	1,218
7. Permits passed	

The above statistics show, in comparison with the figures for the previous year, in item No. 1, a decrease of 51.3 per cent; No. 2, an increase of 62 per cent; No. 3, an increase of 6 per cent; No. 4, a decrease of 38.6 per cent; and No. 6, an increase of 55 per cent. For items 5 and 7 no fair comparison can be made, as item 5 includes "Foreman's plats recorded" and "Locations recorded, no plat necessary," and appears in the present form for the first time. Item 7 was only given for the latter part of the preceding year.

part of the preceding year.

Item 1 includes all mechanical and architectural drawings, maps, charts, diagrams, profiles, foreman's plats, intersection cards, and paper tracings. The principal reason for the decrease in this item is due to the discontinuance of the making of

foreman's plats.

These plats consisted of white cards 8 by 10 inches, on which were shown in ink a plat of the engineers' notes on the various jobs of laying water mains, erecting fire

hydrants, horse fountains, etc., together with a bill of materials used, etc.

On October 1, upon the recommendation of D. W. Holton, then in charge of subdivision D-301, general engineering, the making of these plats was discontinued. The field parties were required to make up their notes more carefully, and the draftsmen began posting the various maps and map tracings directly from the notes instead of from the foreman's plats. This method of posting requires more time, but has resulted in quite a saving for the department. Under the former method the average cost of making plat and posting each job was 85 cents. By the present method the average cost of posting each job amounts to 52½ cents, thus saving an average of 32½ cents per job. For the time it has been in operation this amounts to \$142. The approximate average amount per year would be \$222.

approximate average amount per year would be \$222.

The large increase in item 6 is due to counting all the communications written by the stenographer and typist. Heretofore, we had been counting only those written or

dictated by the draftsman in charge of estimates and reports, etc.

The routine work of the division consists of posting daily the 50, 100, and 300 foot scale maps and map tracings of the District; making up projects for water-main extensions; posting daily the work-in-progress maps, and graphical log; working up daily the data showing pumping operations and water consumption; making up cards showing mains, valves, etc., at street intersections; making up weekly bulletin of the division; passing schedules of street work to be done under commissioners' orders; passing permits for terraces, copings, and driveways; miscellaneous lettering; estimates, reports, and general office work.

The titles of some of the mechanical drawings made, are as follows:

Motor-truck crane hoist for handling large pipe and fittings.

Smith high-pressure fire hydrant as constructed for Washington, D. C.

Water feed pump for No. 4 engine, District pumping station.

Revised plans of 8 and 12 inch water-department valves, and wrote specifications thereof.

Corporation cocks, 11, 11, 1, and 1 inch.

Wheel valve, 2-inch.

Male hexagon nipple, 2-inch.

Curb cock, 1-inch.

Pitometer connection, 11-inch.

Full-way T-handle stopcock, 1-inch.

Special 1-inch union.

Among the architectural drawings made were:

Revision of drawings of repair shops erected on Bryant Street, west of Second Street, NW., and 16 additional drawings of details and changes in construction, made up during the construction of the shops.

A new set of plans, consisting of 8 sheets and 3 full-size details, were made for the proposed municipal garage, to be erected on Bryant Street, west of Second Street NW.

The titles of other plans of an architectural nature, are:

Proposed skylight over areas in rear of District pumping station.

Plan of boiler room, District pumping station, for District of Columbia inspector of claima

Portion of District pumping-station engine room showing space available for proposed centrifugal pump.

Installation of metal ceilings in portion of District pumping station.

West attic storage at District pumping station. Reinforced concrete roof over Reno Reservoir.

The titles of some of the maps and plans made, are: Twenty-inch main from Pennsylvania and Minnesota Avenues SE. to Nichols

Avenue and First Street SE., showing all property along the line thereof.
Two maps showing service areas and trunk water mains of the District.
Map of District of Columbia showing all street intersections and alley squares, for which valve intersection and alley square cards are available.

Map of District of Columbia showing all service water mains and sewers outside of the solidly built up portion of the District, for office of engineer commissioner.

Plan of water distribution system of the District of Columbia.

Two new work-in-progress maps.

Two maps showing all of the public reservations in the District. Map showing the Potomac River drainage basin above Washington.

Two new 100-foot scale water-main maps.

There were also made 31 new map tracings to replace those found in a torn and dilapidated condition.

Titles of some of the miscellaneous drawings made are:

Work assignment board for division D. Standard frame for maps, diagrams, etc.

Periodical board and cards.

Sliding tray for posting board of 300-foot scale map case.

Shadowless drawing table.

Method of carrying 12-inch water main under Q Street Bridge NW.

Standard lettering used on District of Columbia vehicles.

A sign was made for each of the six pumping units at the District pumping station, giving a full description of it. These signs to be framed and hung from the railing of each unit.

Tracings were made of the intersections where valves had been placed on the lines between water-service areas, to be used for fire-service reinforcement. Eight sets of blueprints were made up in the form of loose-leaf books, which consisted of nine sheets, 4 by 6 inches, that being considered the most convenient size for carrying in the pocket.

Tracing showing equipment for evaporation station.

Quite a number of diagrams and charts were made, the titles of which follow: Total daily and per capita water consumption 1896-1914.

Method of procedure incident to the laying of a water-main extensions.

Total consumption, per capita consumption, and population, of record and estimated, 1896-1930.

Actual and estimated monthly receipts and expenditures for fiscal year ending

June 30, 1915.

Water consumption, services, meters in use, etc., 1896-1914.

Chart showing summary by years of income and expenditures, of water supply, purification and distribution works of the District of Columbia.

Diagram showing expenditures for the supply, purification, and distribution sysems of the District of Columbia from its inception, 1850, to June 30, 1914.

Pressures on gravity service during capacity test of the water system in the downtown section on Saturday morning, November 7, 1914.

Diagram showing rates of flow in trunk mains affected by capacity test Saturday

a. m., November 7, 1914.

Comparative average cost of laying 6, 8, and 12 inch water mains in Washington, D. C., and 15 other cities of the United States.

Amount and brand of cylinder oil consumed each week at District pumping station

for past four years.

Rate of flow on first high service.

Property keeping system personal.

Other items of work performed by this division are as follows:

Made-up list of trunk mains, showing which may and may not be tapped for house service and marked all mains which may not be tapped on the map tracings of this and the water registrar's office.

Prepared blueprint of Massachusetts Avenue Heights showing by means of colored pencils the frontage assessed, the unproductive frontage, water mains assessed on one side, on both sides, and unproductive mains. A statement was also compiled

giving this information and the total cost of construction and the amount of assessment. The two previous lists of the alley directory giving the names of the inhabited alleys of the District in the numerical order of the square numbers and in alphabetical order have been carefully checked and revised. A third list has been compiled giving the names arranged in accordance with the section in which the alleys are located. Copies of these lists were made up and put into service.

A summary of statistics was made for the year ended June 30, 1914, in the form recommended by the New England Water Works Association.

The statements of the routine work performed by each member of the division were checked over and revised several times during the year.

The photo albums in the office of the superintendent were posted whenever there was occasion to do so.

The organization chart of the department was revised three times during the year. An index was made of books and catalogues containing tables, data, etc., of value

and interest to the men of the department.

A compilation was made of all laws and commissioners' orders governing the assessment of property in the District of Columbia for water-main extensions.

Data was compiled showing the cost of operating the pumping engines at the Dis-

trict pumping station, the amount of water pumped, and cost per foot for laying large water mains for the years ending June 30, 1909, to 1914, inclusive.

A monograph on the making of foreman's plats was written for record and possible

future reference.

In order to facilitate the smooth handling of projects a description was written

of the procedure required.

Quite a large number of samples of materials to be used in the building of the new repair shops were submitted by the contractor. A number of these were in substitution for those required in the specifications. These cases were carefully investigated to see that the samples submitted were equal to those specified and a report made in each case.

During the year 49 sets of paper and 4 sets of cloth blue prints were prepared for distribution to the field parties by marking with yellow crayon the services and

service lines and segregating the prints into sets.

A list was made of all the technical books that had been purchased by the water department in order to learn if all the books could be accounted for and in whose hands they could be found. A card index was then made up giving the title, author, and place where each book could be found.

Two small and eight large maps of the District were mounted on cloth for various purposes. We also mounted two large sheets of blue prints of charts, diagrams, etc., for the Engineer Commissioner. Two of the large maps were made up as work-in-

progress maps, showing the 70, 140, 170, 210, and 350 foot contours, the service areas in their appropriate colors, and the valve-operating sections blocked off and numbered. One of the small maps was used as an index to the 50 and 100 foot scale watermain maps. Another large map was made up as an index to the street-extension maps. Several were made up for the use of Capt. Powell and the Engineer Commissioner.

A new method of filing and indexing drawings in rooms 310 and 312 was devised

and put into operation.

In room 310 the drawings were filed flat in 9 drawers 27 by 39 by 21 inches deep. The numbering of the drawings was begun with 100; 100 to 199 being in the first drawer, 200 to 299 in second, etc., each 10 numbers being divided by sheets of heavy cardboard. The drawings as made were numbered in consecutive order and filed away and in some cases indexed only under the first letter of the title, and unless one could correctly guess the title, a lot of time was wasted trying to find the drawing. If one wished to get all the drawings of one machine or apparatus together, if they had been made at various times, it was necessary to search through the index to find

the various numbers, instead of finding the information on one card.

About the time that the 800 drawer was put into use we began to use sheet and subnumbers for related drawings made up at the one time, instead of using a separate consecutive number for each drawing. By the time 899 was reached this drawer contained 365 drawings and prints and, as the heavy cardboard sheets took up half the depth, the drawer was overcrowded, heavy, and hard to handle, while the other drawers were not much over half filled-in some cases where drawings had been lost—containing less than 100 drawings, quite a number of which were obsolete. system lacked flexibility and the time was fast approaching when the capacity of the nine drawers would be reached. By overcrowding drawer No. 9 as badly as No. 8, about 200 more drawings could have been filed, making a total of about 1,300.

It is estimated that by the new system at least 5,000 drawings can be filed in these

drawers.

In the new system the heavy cardboard is replaced by detail paper, twice as long as the drawer is deep, which, when folded in the middle, forms a pocket, of which there are 10 to the drawer. These are cut so as to show tabs on the outer ends onetenth the width of the drawer. On these tabs are marked the drawer letter, the index number of the pocket, and the kind of drawings contained in the pocket. On the outside of each drawer is a card bearing the drawer letter and description of the kind of drawings it contains.

Theoretically, each pocket will contain 100 drawings, and each drawer 1,000, but it is estimated that each drawer will actually contain about 600 drawings, and all the drawings of the same kind are in the one pocket, and we have found that in most cases it is possible to get out the desired drawing or drawings without resorting to the use of the index.

In the old system we used an alphabetical and a numerical index. In this system we also use two indexes—the first, an alphabetical, in which each machine, appliance, or apparatus is given a card; the second is a drawer index, divided into sections by tab cards bearing the index letters of the drawers. These sections being subdivided by tab cards bearing the pocket numbers from 1 to 9. These divisions contain a separate card for each drawing or set of drawings, and by consulting this index it is

easy to find the next number required for a new drawing.

The use of this system has resulted in the saving of a great deal of the time formerly expended by the old system in getting out drawings when they are required.

Putting this system into operation required the making and lettering of 90 pockets,

two new indices, and the renumbering of all the drawings.

In room 312 the miscellaneous maps, plats, profiles, etc., are filed in rolls, in a cabinet containing 100 compartments 4 by 4 by 42 inches deep. The maps, etc., vary in width from 10 to 42 inches, and in taking out and replacing the drawings they would become disarranged, the smaller ones frequently being pushed back out of sight, and when they were required, a good deal of time was lost in recovering them. To correct this, the drawings were divided into three sizes: First, up to 18 inches long; second, up to 24 inche long, and third, those over 24 inches long. Fillers were made for 60 of the compartments by using two pieces of \(\frac{1}{2}\)-inch poplar 4 by 4 inches separated by a strip of \(\frac{1}{2}\)-inch board, placed diagonally, to which they were nailed. Thirty of these were made 18 inches long and 30, 24 inches long, and they have effectively solved the problem. This arrangement made necessary the renumbering and indexing of these drawings. In doing this all charts, diagrams, and drawings of a miscellaneous character were transferred to the filing cabinet in room 310, which already contained drawings of this character, while the maps found in the filing cabinet in room 310 were transferred to room 312, thus making it unnecessary to search through the indexes in both rooms in order to find a drawing.

A great deal of trouble had been experienced in posting the 50, 100, and 300 foot scale maps, by reason of the blue ink running and blotting where it had been necessary to make an erasure and reink over the place erased. On March 30 we began using Prussian blue water color paint instead of the blue ink, and it has proved a most decidedly satisfactory remedy for the trouble. Before using the paint we made a comparison of the fading qualities of the ink and paint by making up a sheet with two sheets of duplicate drawings, using both ink and paint, and exposing one set to the sun and weather for a period of eight days. At the end of this period it was found that the ink had faded slightly but the paint not at all. Portions of all the drawings were then erased, and the erased portions replaced, which resulted in the ink spreading and blurring, while the paint lines, etc., were as clear cut as before erasure. Less time is consumed in erasing the paint for corrections.

For three months during the winter, the division held a short weekly conference. The principal reason that these conferences were held, was in order that all the men of the division should become conversant with all of the work of the division, and in order that suggestions might be received which would make for efficiency. Each of the men in turn gave one or more talks on his duties, illustrating points where necessary by drawings on the blackboard. The reports on these talks were reviewed at

the next meeting and suggestions made for improvements.

The graphical log of pumping operations and water consumption was posted daily, and at the end of each month, the daily averages of the pumpage on the high services, the total consumption of water, CO2 in flue gases, coal consumed and duty were computed and posted.

From the pressures taken bimonthly on 45 fire hydrants of the district the hydraulic heads were computed and recorded in the pressure book and posted on the pressure

On or about the 6th of each month the surveyor's office was visited and all of the subdivisions made during the preceding month were checked to see if the property subdivided was available for water main assessment. Where such was the case a notice was sent to the water main assessment office giving location of property and lot to be assessed.

Tap cards sent to us by the water registrar are checked with our 50 and 100 foot scale maps for possible errors in the location of mains, etc., and where necessary, cor-

rections are made.

The water registrar's books of 50 and 100 foot scale water main map tracings were

posted to date six times in the course of the year.

When it is desirable in certain cases to cut off the water in any section, this division is notified, and furnishes the individual requesting it the information as to the location and number of valves to be operated, and the location of the water mains and fire hydrants that will be out of service.

When notes are sent in by the valve division showing the location of valves, etc., they are posted on the intersection and alley square cards and properly indexed. Where necessary new cards are made up. The notes are filed away on loose leaf books.

Green cards are made up for the use of the water registrar, whenever division D makes a new connection or makes the taps, in cases where a main is lowered or replaced. Estimates were made as to the cost of making large private connections, and reports

made on all projects for water main extensions.

Quite a large number of letters were written on water department subjects, in sponse to requests for such information from other cities. The larger number of response to requests for such information from other cities. such requests, however, are answered by sending a copy of the pamphlet, The Water Supply, Purification and Distribution Systems of Washington, D. C., which was compiled by this division.

Every afternoon a report is made of all the excavations, which will require to be lighted that night. This information is taken from the work-in-progress map, and received by phone from the pitometer division and the water registrar's office. report is typewritten and copies sent to the superintendent and engineer of the

department.

There are nine men in the subdivision including Mr. Heins, in charge. This is

three less than the personnel of last year.

The vast amount of detail and special work performed by division E was made possible only through the complete and harmonious cooperation of the men in the division, of whose work I can not speak too highly. In closing my report I wish to take this opportunity to give the credit due them and officially thank them for their willing and efficient assistance.

Respectfully submitted.

D. W. Holton, Assistant Engineer.



#### STEAM ENGINEERING AND SHOPS.

Sir: The following is a summary report of work done at the District pumping station during the fiscal year beginning July 1, 1914, and ending June 30, 1915:

Water pumped, figured from plunger displacement First high service	do 2, 327, 358, 990
Total Coal burned Cylinder oil used Engine oil used Grease used Waste used	tons. 5, 959. 36gallons. 535do. 1, 176. 25pounds. 347. 5

The regular force employed for the operation of the pumping engines, boilers and auxiliaries, cleaning of machinery, etc., is as follows:

	Steam engi- neers.	Assist- ant steam engi- neers.	Firemen.	Oilers.	Cleaners.	Laborers.
Sunday Week days.	3 3	3 3	3 3	4 4	4 4	4

For the fourth high service the water is pumped from the Reno Reservoir (which is supplied by the third high-service pumpe) to an elevated tank by gasoline engines the reservoir, and one assistant on night duty. The water pumped for this service during the year is 66,673,452 gallons, or a mean of 183,000 gallons daily.

The Anacostia pumping station has been operated without interruption during the year, pumping to the three towers supplying the area east of the Anacostia River. This station is taken care of by two men.

The water pumped during the year, figured from plunger displacement, follows:

First high servicegallons.	106, 330, 800
Second high servicedo	7, 389, 640

Total......do.... 113, 720, 440

A mean of 312,000 gallons daily.

#### REPAIR SHOPS.

The work accomplished during the year follows: All necessary repairs for the machinery at the District pumping station, fourth high service and Anacostia stations; repairs to automobile trucks, both for this department and the several departments of the District of Columbia; made practically all repair parts for fire plugs, valves, street hydrants, etc., including all tools used on the work of laying water mains, etc., such as picks, chisels, breakers, calking tools, yarning irons, valve keys, pipe bands, eyebolts, arch irons, and miscellaneous tools and appliances as required for the various work.

The detail of the work follows in part: Removed cracked bottom discharge chamber, high-pressure pump of the 12,000,000-gallon Barr vertical pumping engine and ber, high-pressure pump of the 12,000,000-gallon Barr vertical pumping engine and replaced with a new casting without dismantling any of the superstructure; repaired leaks in steam lines, economizer, Holly drip system; repaired dirt rammer, pipe machines, Avery coal scales, Crowe stokers; rebuilt automobile truck for police department; put new tubes in boilers as necessary; repaired heating system; repaired drinking and horse fountains; built thirty-three 3-way and forty-seven 4-way valves, 6 and 8 inch bells, three hundred and thirty 8-inch, fifty 6-inch, and ten 12-inch gate valves; repaired valves as follows—twelve 3-inch, forty-two 4-inch, sixty-six 6-inch, twenty-five 8-inch, three 12-inch, four 3-way, eight 4-way, and one 20-inch valve; total, 161 valves; repaired 29 Buckeye melting furnaces; reversed bells of 52 fire hydrants; made valve springs for pumps and fire hydrants; tested 2 of each shipment of valves for interchangeability; drilled and tapped 260 pipe bonnets; drilled 102 pair of pipe bands; cut pipe and pipe nipples for storekeeper; repaired 2,135 water meters; repaired 66 main valves for fire plugs; repaired 16 diaphragm pumps; put handles on dirt rammers; machined collars on 43 electric-light poets and 50 ornamental tops for police patrol boxes; made flagpoles for pumping station and Anacostia station; unloaded tank cars for fuel oil for Anacostia station (this work consists of pumping the oil from the car at the Twining City siding to the storage tank at the station); sharpened Smith cutters; sharpened paper-cutter and horse-clipper knives and completed numerous small jobs for the expedition of the work of the department.

#### BRASS FOUNDRY.

During the year all composition metal castings for valve work, repair parts, etc., have been made in our foundry, which has been operated without interruption. There were made in the foundry 37,336 pounds of brass castings, small and medium size, such as would be made in a general jobbing shop; also 568 pounds of aluminum castings for the electrical department. The showing of our foundry for the year is most satisfactory, and the repair work at this station has been much expedited by the casting of these repair parts when needed for emergency.

#### BLACKSMITHING.

The blacksmiths have made 32 curb and extension keys, 184 new chisels, 125 calking sets; made and repaired 172 meter-box keys; made and sharpened 287 drills; repaired 433 stakes; sharpened 5,229 chisels and 11,514 picks; welded 798 new ends on picks; repaired 123 curb and extension keys; made and repaired 166 frost pins; made 166 pair of casing hooks and 102 pair of pipe bands; made irons for wagons and automobiles; made hook rods and plates, tongs, angle irons, drift pins, wrenches, tappets for fire plugs, yarning irons, swedges; repaired lawn mowers; sharpened mattocks; and made necessary repairs to wagons and autotrucks.

#### CARPENTRY.

The carpenters have built watchman's house, repaired gutters and roof of station, stables, wagon shed, brass foundry and blacksmith shops; repaired doors at station and Brightwood gatehouse; repaired platform in rear of shops and industrial truck; erected telephone booths at Anacostia and Reno stations; repaired floor in stables, leak men's shelter, and Anacostia station; put weather strip on windows at Anacostia station; laid cement walk; built and repaired auto and wagon bodies and made platform for new 5-ton truck; inspected buildings at station, Reno, Brightwood, Anacostia, and new repair shops; built bins in storeroom and shelves in loft; altered partitions and bins in basement; built tables, chairs, counter, and screens for lunch room at the pumping station; built partition in office room and rack in iron ware-house; bracing up No. 4 engine for repairs; put up metal ceilings at station; sharpened saws for storekeeper; made signboards for wagons, key cabinet, map boards, tool chests, cardcases, battery boxes, etc.; laid tile drain around auto shop; built coke and sand bins and driveway in west property yard; built forms for concrete work; made patterns for valves, street signs for electrical department, repair parts, etc.; boxed patterns for shipment; made one thousand four hundred 8-inch concrete rings; four hundred eighty-one 4-inch rings; five hundred twenty-one 8-inch sectional rings, filled 710 casing covers, and roughed 677 covers; made fifty-eight 24-inch covers and three hundred thirty-three 8-inch concrete cylinders.

#### PAINTING.

The painters have painted wagons and automobiles, watchman's house, sash, walls, metal ceilings, and stairways at the pumping station; painted lodge and garage at Reno, lodge Brightwood Reservoir, flagpoles, painted roof of brass foundry, shelving in storeroom, water towers at Anacostia, intake towers at Brightwood; painted fence back of greenhouse, street hydrants; lettered signs, wagons, and autos; cleaned and varnished telephone operator's room; mixed color for various purposes; bronzed radiators; covered steam piping with asbestos; made and repaired curtains and cushions for wagons, autos, and buggies; inspected painting work on new auto repair shop.

## ELECTRICAL WORK.

The electrician and helpers have taken care of generators, switchboards, motors, lights, etc., operated conveyor, economizer scrapers, and crane; tested and recharged storage batteries, repaired electric fans; made repairs and adjustments on motor at

Union Station Plaza; laid conduit to watchman's house and new auto repair shops; repaired bell signals on elevators; made repairs to motors; made adjustments to blueprinting machine; connected cable for brass foundry; connected telephone and lights in booths at Reno and Anacostia stations; repaired extension cords; operated detonator for blasting charges; altered brackets for metal ceilings; erected flagpole at station; installed hydrochronograph in water tower at Thirtieth and R Streets SE.

### CARE OF STATION.

The janitor and his force have taken care of all cleaning throughout the building removing shavings from the woodworking shop; attended to window cleaning; removed turnings, scrap and other débris from machine shop; furnished messenger service to the office, etc.

JAS. T. FINK, Master Mechanic.

To the Superintendent, Water Department.

## PITOMETER SURVEYS.

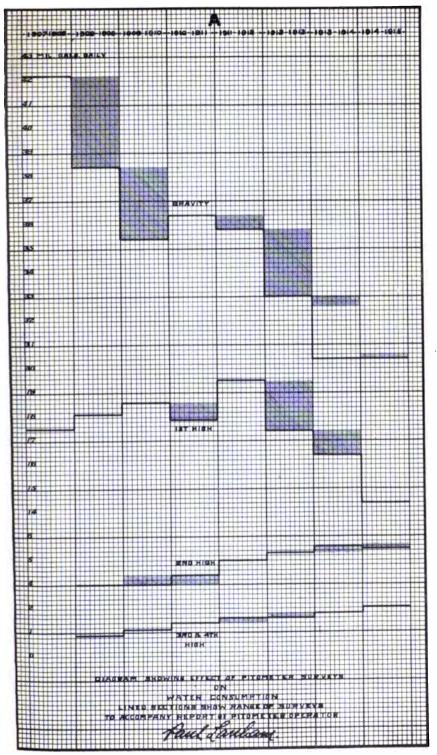
SIR: Underground leakage at the rate of 1,828,800 gallons per day was located and stopped by the pitometer division during the fiscal year 1914-15, the ninth year of the pitometer service in the District of Columbia. This, however, does not represent the total results of the year's work, as due to the activities of this division at several Federal institutions reduction in water consumption by the elimination of waste and reuse of water in mechanical processes approximating 600,000 gallons daily was

accomplished.

The surveys were confined almost exclusively to the gravity and second high services, and the effect upon the total rates of consumption in these territories has been very noticeable. A total of 382 leaks was found, the average waste per leak being 4,800 gallons daily. These figures show a reduction in the total number of leaks, and also in the waste per leak, and indicate that the underground leakage is being gradually eliminated. The small size of the leaks found and the consequent low velocity of flow in the mains made the difficulties of detection very acute during the year, and the successful termination of the countless individual flow investigations is a matter of great pride to this division. These results were made possible by the close attention to the work in hand, long experience of the field men, and improvements in apparatus. The introduction, development, and successful operation of the manograph was a factor in the success of the year's efforts, this instrument having proved of such value as to completely displace all other pitometer recording apparatus and produce results heretofore unobtainable.

The work in the gravity service embraced all of the territory with the exception of district E, the portion lying west of Fourteenth Street NW., and this was under investigation at the close of the fiscal year. The gravity service includes practically all of the remaining unmetered connections in the city, and the pitometer work in this section, therefore, was accompanied by house inspection. The houses inspected totaled 17,563, and leaking fixtures were found in 1,691, or 9.6 per cent. This is practically the same ratio as found last year, but in 1907, when the pitometer surveys were started, this ratio was approximately 16 per cent, showing that waste through leaking fixtures within the buildings has been reduced greatly and water saved thereby. The large number of Federal buildings located in the gravity service makes it difficult to gauge the effect of the surveys by comparison of total consumption yearly, because of the extreme variations in the rate of flow to these buildings under different conditions. For instance, at the Bureau of Engraving and Printing the emergency currency issue made necessary the operation of that plant upon the 24-hour day basis for a number of weeks. This change practically tripled the rate of water consumption during that period. At the Government Printing Office the gradual advance in the volume of work made it necessary to install a new 1,000-kilowatt generator with turbine drive. This introduced a condenser using city water at approximately 3,800,000 gallons daily. When this turbine was in operation the increase in water consumption represented about 2,000,000 gallons daily, as only one small generating unit was displaced by it.

Examination of chart A will show that the gravity consumption for the past fiscal year and the year previous was identical in spite of these abnormal increases in water usage. In addition to these, also, must be taken into consideration the transfer of a flow of approximately 300,000 gallons daily in Anacostia from the first high service to the gravity service, occasioned by the installation of the new Anacostia pump service.



With no corrective measures, there is every reason to believe that the gravity consumption would have increased during the year by over 1,000,000 gallons daily, so that the holding of the total figure at the same point as last year is significant. Upon casual observation it may seem that the gravity consumption should have decreased with the first high service consumption as shown by the chart, but closer study of the causes reveals the fact that all abnormal conditions in the latter service were in favor of low consumption, notably the transfer of the Anacostia territory mentioned above, the completion of meter installation, the reduction of the total allowance of water at minimum meter rate from 112,000 gallons to 56,000 gallons, and the increase in rate of charge for excess consumption.

The work of the second high service was not extensive and represented the completion of the survey started last year. The total underground leakage detected was small, and the drop in the average daily consumption for the year as shown in chart A may be attributed to the joint effect of the pitometer surveys, reduction in the total allowance of water at minimum meter rate, and increase in the rate for excess

consumption.

Examination of Table B, herewith, giving classes of leaks, shows that iron and lead services, including wiped joints, were responsible for 1,329,550 gallons leakage daily. Comparison of the figures of this class for the several years shows that while there has been a marked decrease in the quantity of waste from this source, the service pipes continue to be the most fruitful causes of underground leakage. The figures further indicate that this is due to a very great extent to the corrosion of the old iron pipes, and while the fallacy of using the black iron pipe was discovered years ago and its use discontinued, the evil will endure for years to come. While there is no information on record as to the number of feet of black iron pipe still in service, indications are that there remains a vast quantity still under pressure which can be relied upon to produce serious leakage. Leaking joints on mains were responsible for 368,800 gallons of waste daily, and the detection of these leaks represents a very important part of the work of the pitometer division. Where a crevice has once opened in a caulked joint, the action of water and sand wears out the lead and the leak rapidly becomes worse. Frequent inspection of mains and repairs of small leaks, therefore, prevent not only the actual leakage taking place at the time of detection, but also the great waste which would result if the leaks were not promptly detected and repaired. Leaks of this class are due to defective workmanship in the old contractlaid mains, where insufficient lead was used in the joints, to settlement of mains adjacent to excavations for buildings, sewer trenches, tunnels, etc., and to water hammer produced by house pumps directly connected to mains, and incorrectly designed float valves and automatic devices.

The largest leak detected during the year was at the rate of 75,000 gallons per day, through a 36-inch joint at Sixth Street and Louisiana Avenue NW. Other large leaks worthy of special mention were a 6-inch joint at the Mount Vernon Steamboat Co.'s wharf, wasting water at a rate of 40,000 gallons per day, and on a wiped joint

at the same place, at the rate of 35,000 gallons per day.

In the course of the survey of mains in the southwest section an old unrecorded 6-inch gate valve was located at Four-and-a-half Street and Maryland Avenue SW., but with this one exception no discrepancies were found between the maps of the department and actual underground layout.

Special investigations during the year embraced a survey of water used at the Bureau of Engraving and Printing, Government Printing Office, Washington Navy Yard, and the State, War, and Navy Building.

The investigation of water usage at the Bureau of Engraving and Printing was under-

taken in connection with measurements of that plant with a view toward preparing project for the installation of separate river water system. Preliminary work on this project was completed and submitted to the master mechanic of the Bureau of Engraving and Printing, but further work was abandoned upon his statement that radical changes in the plant were contemplated in connection with the erection in the near future of a central power plant for Federal buildings in the vicinity. Attention of this division was then confined to determining whether the present use of water was necessary, and as a result suggestion was made that a large pump be installed in the hot well containing exhaust water from the condensers, permitting the use of this water in the laundry and macerators. At the present date this pump and necessary equipment has been indorsed by the bureau officials, and it is expected that it will be received and erected within the near future. When this pump is placed in operation it is believed that an economy of 300,000 gallons of water daily will be in effect continuously.

Special work in the Government Printing Office consisted of measurements and tests of the consumption of water for condensing purposes in the barometric con-

denser forming part of the new 1,000-kilowatt generating set recently installed. As a result of these tests, which showed the excessive rate of 3,800,000 gallons daily, and the protests of this department against the waste, steps were taken by the superintendent of the building to alter the condenser in such a manner as to reduce the flow of water. These alterations did not prove entirely satisfactory, but the schedule of operation of the generator was changed so as to reduce the consumption to the least figure possible under the conditions. In this connection consideration is being given by the Printing Office to the proposal of Capt. R. G. Powell, assistant to the engineer commissioner, to discontinue the use of this power plant, except in emergency cases, and supply all electricity for the Printing Office and Post Office buildings from the congressional power plant and later from the new central power plant at the water front, the project for which is now under way.

At the Washington Navy Yard comparison of measurement of the total water consumption in December 1914.

At the Washington Navy Yard comparison of measurement of the total water consumption in December, 1914, with previous records showed that there had been a heavy increase in the total, and this conclusion was corroborated by the meter measurements of the Washington Aqueduct. Investigation by the pitometer division revealed the fact that a number of pumps previously supplying river water to the shops had been shutdown in order to reduce the overhead shop charges. At the request of the pitometer division the use of these pumps was again secured, resulting in a reduction in the filtered water consumption approximating 400,000 gallons daily. Officials of the yard have promised to continue the use of the pumps in the future, and it is felt that this saving will be permanent. The pumps above referred to furnish water to the cartridge case shop, foundry, and pneumatic plant, and do not include the pumps supplying water for condensing purposes in the electric power plant. These latter were found idle in 1909 by this division, and upon protest were placed in service under orders of Admiral Leutze, then commandant of the yard, and since that time have been maintained in practically continuous operation, saving water at a rate of over 1,500,000 gallons daily. Also, as a result of the solicitation of the pitometer division at various times for water economy the navy-yard officials at considerable expense installed a large cistern and pump to permit the reuse of condensing water for boiler feed, and thereby made further saving in the use of city water.

The consumption and waste of water at the State, War, and Navy Building has occupied the attention of this division at various times since 1907. Recently request was made by the officials of that building for an extension of the high-pressure water service to supply all domestic uses within the building in place of the present gravity supply, which had to be pumped to house tanks. By order of the superintendent of the water department, an examination and pitometer survey was undertaken to determine the conditions and make recommendations as to this extension. results of this work were given in detail in report of this division under date of April 22, 1915. The pertinent point of this report was the recommendation that the high-service extension should be granted, subject to restrictions as to cross connecting with the low service; confinement of the use of water from it to fixtures above the secondfloor line; installation of float valve in supply to elevator accumulating tank; increase in height of overflow line in northwest elevator surge tank; maintenance of house pump automatic-control system in operation pending completion of high-pressure installation; abandonment of all gravity connections except the 8-inch on Seventeenth Street and 6-inch in northeast corner of building; and cooperation in the matter of water economy by assisting in securing installation of cooling tower and alteration of vacuum pump. The extension of the high service was granted by the commissioners and accepted subject to these restrictions. A number of these changes are in operation and work is under way upon the balance, resulting in a positive saving of 200,000 gallons of water daily, and possibly much greater economy in the future, without taking into consideration the saving made possible by the abandonment of the old automatic flushing fixtures effected by the introduction of the high-pressure service.

The example set by the Washington Navy Yard and the State, War, and Navy Building in the matter of cooperation with the water department toward water economy gives the greatest encouragement and leads us to believe that eventually the question of water waste in the Federal institutions will be solved. Only 600,000 gallons daily saving is mentioned in this report as the results of the work at the buildings mentioned, this being the actual and immediate return in effect at the close of the year, but this does not include the economies expected from suggested changes already under way and plans under consideration.

Very respectfully submitted.

PAUL LANHAM, Pitometer Operator.

SUPERINTENDENT, WATER DEPARTMENT.

### SUPPLEMENTS.

A. Chart, effect of pitometer surveys.
B. Sources and quantities of underground leakage, 1907–1915.
C. Underground leaks, 1907–1915.
D. Results, house inspection, 1908–1915.
E. Year's results, 1914–15.
F. Surveys of permanent pitometer districts, 1914–15.

# B.—Sources and daily quantities of underground leakage, 1907-1915.

Class.	1907-8	1908-9	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Abandoned taps and	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
services	}2,72 <b>9,0</b> 00	<b>{</b>	355,300 2,438,000 1,201,900	173,600 1,508,900 1,237,600	174,200 2,329,800 976,700	180,900 1,988,800 394,000	101,700 924,000 471,000	54,700 861,950 254,100
Wiped joints Couplings	327,000		710,100	666,700 182,900	438, 100 123, 700	282,300 75,600	237,000 66,900	213,500 20,500
Stopcocks		5,214,000	84,800	43,300 42,000	53,500	32,900 5,700	16,900 500	17,150
Joints on mains Broken mains	1,039,900 1,200,000	1,345,600 117,000	1,034,200 332,000	2,562,500 15,900	746,300 7,000	962,300 103,300	596,800 62,200	368, 800
ValvesBlow-offs	23,500	62,000 737,000	89, 100	110,900 176,600	27,100 71,300	13,200 6,000	6,800	300
Fire hydrants Public hydrants	174,000	45,500		19,200 84,200	3,500 50,200	115,000 21,000	12,000	5,120 500
Unclassified	<del></del>	2,039,500	e 264 100	97,600 5,921,900	103,800	15,000 4,196,000	56, 500 2, 552, 800	32, 200

## C.—Underground leaks, 1907-1915.

Year.	Number.	Quantity per day.	Average per leak per day.
1907-8. 1908-9. 1909-10. 1910-11. 1911-12. 1912-13. 1913-14. 1914-15.  Eight years.	532 624 813 651 452	Gallons, 5, 604, 400 9, 560, 600 6, 364, 300 5, 115, 300 4, 195, 100 2, 552, 800 1, 828, 820	Gallons. 20,700 11,500 12,000 11,100 6,300 6,400 5,600 4,800

## D.—Results, house inspection, 1908-1915.

-	Yеат.	Houses in spected.	Houses with defective fixtures.	Percent-
			4,621 3,305	16. 6 15. 2
1910-11 1911-12			3,262 4,943	15.1 15.7
1913-14		17,039	3,725 1,603 1,691	14.1 9.4 9.6

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# E.— Year's results, 1914-15.

Number of notices served	xtures (9 d	.6 per cet	nt).	• • • • • • • • • • • • • • • • • • •	. 1,691
Trumber of houses cut on			ND LEAKAGE.	• • • • • • •	. 14
Class.	Number.	Gallons per day.	Class.	Number.	Gallons per day.
Abandoned services. Iron services. Lead services. Wiped joints. Couplings.	183 58 48	54,700 861,950 254,100 213,500 20,500	Valves. Public hydrants Fire hydrants Unclassified	1 3	5.12
Stopcocks	15	17, 150 368, 800	Total	386	1,828,8
	PH	OTOGRA	PHIC WORK.	·	
Blue prints made for div	rision E.	• • • • • • • • •	************************	• • • • • • • ·	4, 14
Blue prints made for div	ision B.			• • • • • • •	97
Photographic plates exp Photographic prints exp	osed		••••••		3:
Pitometer records develo	ped	• • • • • • • •	•••••	• • • • • • •	3
		EXPE	NSES.		
Per diem labor and mate Operating New work			•••••	<b>\$</b> 3	31, 713. 2 1, 720. 3
				3	3, 433. 6
F.—Sur	veys of p	ermanent	pitometer districts, 1914–15.		
PM	COMETE:	R DISTRI	CT A, SURVEY NO. 2.		
Date of measurement,	Aug. 22-	28, 1914.	_	_	
Mean daily supply Minimum night rate	•••••	• • • • • • • • •	gal	lons6	5, 583, 00 1 435, 00
Ratio of minimum night	rate to n	nean dail	y supplyper o	ent	6 , 430, 00
Subdivision survey: Started, July 29, 191 Finished. November	.4. · 26. 1914	L.			
Cost		• • • • • • • • •		••••••••••••••••••••••••••••••••••••••	5, 281. 4
Population: Resident—			•		
Metered			• • • • • • • • • • • • • • • • • • • •		
Uninewred		• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •		
				· · · · · · · · · · · · · · · · · · ·	13, 62
			••••••	· · · · · · · · · · · · · · · · · · ·	13, 62
Total Floating— Metered			••••••	·······=	13, 621 19, 502 24, 392
Total  Floating— Metered Unmetered  Total Per capita consumption, Buildings:				=	13, 621 19, 502 24, 392 8, 783 33, 175
Total  Floating— Metered Unmetered  Total Per capita consumption, Buildings: Dwellings— Metered	compute	od from re			5, 881 13, 621 19, 502 24, 392 8, 783 33, 175 338 190 2, 388

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.	89
Buildings—Continued. Municipal buildings—	
MeteredUnmetered	
Federal buildings— MeteredUnmetered.	
Factories— Metered	
Unmetered	_
Unmetered	1,001
Unmetered Total—	1, 172
Metered	1, 409 3, 585 3, 802, 400
Due to inside flow— Metereddo	989, 600
Unmetereddo  Due to underground leakage—	1,095,600
Service pipes. do Joints on mains do Valves do do do do do do do do do do do do do	452, 200 45, 400 30, 000
Totaldo  Due to Federal buildings and fountainsdo	527, 600 402, 700
Due to municipal buildings, flush basins, horse founts	160, 900
PITOMETER DISTRICT B, SURVEY NO. 4.	020,000
Date of measurement, May 3-9, 1914.	9 007 000
Mean daily supply gallons.  Minimum night rate do do  Ratio of minimum night rate to mean daily supply per cent.  Subdivided App 20 1015	2, 692, 000 69
Started, Apr. 29, 1915. Finished, July 8, 1915. Cost	<b>\$</b> 2, 752. 23
Population: Resident—	
MeteredUnmetered	6, 602 5, 690
Total	12, 292
Floating— MeteredUnmetered	8, 113 1, 650
Total	9, 763 317
Dwellings— Metered Unmetered	1, 457 1, 196
Hotels and apartments— Metered. Unmetered.	11 0

Buildings—Continued.	
Municipal buildings— Metered	18
Unmetered	10 1
Federal buildings—	-
Metered	6
_ Unmetered	13
Factories—	_
Metered	
Unmetered	1
Restaurants— Metered	16
Unmetered	0
Miscellaneous—	·
Metered	192
Unmetered	156
Total—	
Metered	
Unmetered	1, 367
Due to inside flow—	1, 2/1, 800
Metereddo	94, 100
Unmetereddo	340, 100
Due to underground leakage—	
Service pipesdo	133, 500
Joints on mainsdo	78,000
	<del></del>
Totaldo	211, 500
Due to Federal buildings and fountainsdo	549,000
Due to municipal buildings, flush basins, horse fountsdo	53, 500
Total flow accounted fordo	
Total flow unaccounted fordo	23, 600
PITOMETER DISTRICT C, SURVEY NO. 4.	
Date of measurement, Apr. 20-26, 1914.	
Mean daily supplygallons	3 537 000
Minimum night ratedo	2. 946, 650
Ratio of minimum night rate to mean daily supplyper cent	83
Subdivision survey:	
Started Feb. 21, 1915.	
Finished May 5, 1915.	
Cost	<b>\$2,912.07</b>
Danulation	
Population: Resident—	
Metered	6, 899
Unmetered	12, 861
Total	19, 760
Floating-	
Metered	4, 161
Unmetered	477
•	
Total	4, 638
Per capita consumption, computed from resident population	179
Buildings:	
Dwellings-	
Metered	1,452
Unmetered Hotels and apartments—	3, 143
	-,
Motored Motored	•
Metered	11

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.	91
Buildings—Continued.  Municipal buildings—	
MeteredUnmetered	9 2
Federal buildings— Metered	3
UnmeteredFactories—	6
MeteredUnmetered	7 1
Restaurants— Metered	. 17
Unmetered	Ō
MeteredUnmetered	334 101
Total— Metered	1, 833
Unmetered	3, 253
Due to inside flow—  Metered	204, 300
Unmetereddo Due to underground leakage—	417, 100
Service pipes	227, 100 25, 500
Valves do do do do do do do do do do do do do	13, 500 266, 100
Due to Federal buildings and fountains	105, 900 89, 500
Total flow accounted for	1, 084, 900 186, 300
	100, 000
PITOMETER DISTRICT D. SURVEY NO. 3.	
PITOMETER DISTRICT D, SURVEY NO. 3.  Date of measurement. Dec. 4-10. 1914.	
Date of measurement, Dec. 4-10, 1914.  Mean daily supply gallons.	4, 284, 000 3, 504, 000
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	4, 284, 000 3, 504, 000 82
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	\$1, 808. 09
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	\$1, 808. 09 1, 283
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628 1, 895 2, 773
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628 1, 895 2, 773 4, 668 403
Date of measurement, Dec. 4-10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628 1, 895 2, 773 4, 668
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628 1, 895 2, 773 4, 668 403 626 2, 224
Date of measurement, Dec. 4–10, 1914.  Mean daily supply	3, 504, 000 82 \$1, 808. 09 1, 283 9, 345 10, 628 1, 895 2, 773 4, 668 403 626 2, 224

Buildings—Continued.	
Federal buildings—	
Metered	2
UnmeteredFactories—	2
Metered	2
Unmetered	2
Restaurants— Metered	6
Unmetered	.ŏ
Miscellaneous— Metered	100
Unmetered	133 239
Total—	
MeteredUnmetered	793 2, 489
Night flow detected by subdivision, per daygallons	1, 629, 500
Due to inside flow—	
Metereddo Unmetereddo	43, 700 463, 400
Due to underground leakage—	200, 200
Service pipesdo	79,000
Joints on mainsdododo	3,000
Totaldo	1, 600 83, 600
Due to Federal buildings and fountainsdo	711, 700
Due to municipal buildings, flush basins, horse fountsdo	88, 700
Total flow accounted fordo	
Total flow unaccounted fordo	238, 400
PITOMETER DISTRICT F, SURVEY NO. 3.	
Date of measurement, July 3-10, 1914.	
Mean daily supply	5 842 000
Minimum night ratedo.	3, 306, 000
Minimum night rate	57
Subdivision survey:	
Started, Dec. 3, 1914.	
Finished, Apr. 10, 1915.	<b>\$5, 208.</b> 21
Population: Resident—	
Metered	14, 520
Unmetered	20, 956
Total	35, 476
. =	
Floating— Metered	10 664
Unmetered	12, 664 1, 869
-	
Total  Per capita consumption, computed from resident population	14, 533 165
Buildings:	200
Dwellings—	
Metered	2, 689
Unmetered	4, 573
Hotels and apartments— Metered	17
Unmetered	2
Municipal buildings—	-
Metered	24
MeteredUnmetered	24
Metered	24

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.	93
Buildings—Continued. Factories—	
Metered	11
Unmetered	0
Metered	27
Unmetered	1
Metered	315
Unmetered	483
MeteredUnmetered	3, 084 5, <b>06</b> 0
Night flow detected by subdivision, per daygallons	3, 398, 850
Due to inside flow—  Metereddo	916, 000
Unmetereddo	728, 600
Due to underground leakage— Service pipesdo	188, 940
Joints on mainsdo	16, 000
Totaldo  Due to Federal buildings and fountainsdo	204, 940 1 317 800
Due to municipal buildings, flush basins, horse fountsdo	52, 940
Total flow accounted for	
Total now unaccounted for	178, 570
Started, June 25, 1914. Finished, Sept. 20, 1914. Cost	<b>\$1, 408. 68</b>
Description of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of t	
Population: Resident—	
Population: Resident— Metered Unmetered	8, 378 415
Resident— Metered	415
Resident—     Metered Unmetered  Total  Floating—	415
Resident—     Metered Unmetered  Total  Floating—     Metered	8, 793 796
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered. Unmetered.	8, 793 796
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total  Buildings:	8, 793 796
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Total.	8, 793 796 67
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:  Dwellings—     Metered.     Unmetered.  Unmetered.  Unmetered.	796 67 863
Resident—	796 67 863 1, 901
Resident—	796 67 863 1, 901
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:  Dwellings—     Metered.     Unmetered.  Hotels and apartments—     Metered.  Unmetered.  Hotels and apartments—     Metered.  Metered.  Metered.  Metered.  Municipal buildings—     Metered.	796 67 863 1, 901 17
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:  Dwellings—     Metered.     Unmetered.  Hotels and apartments—     Metered.     Unmetered.  Municipal buildings—     Metered.  Municipal buildings—     Metered.  Unmetered.  Municipal buildings—     Metered.  Unmetered.	796 67 863 1, 901 17
Resident—	796 67 863 1, 901 17 2 0 7 1
Resident—	8, 793  796 67 863  1, 901 17 2 0 7
Resident—	796 67 863 1, 901 17 2 0 7 1
Resident—	415 8, 793 796 67 863 1, 901 17 2 0 7 1
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:  Dwellings—     Metered.     Unmetered.  Hotels and apartments—     Metered.     Unmetered.  Municipal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Federal buildings—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Miscellaneous—     Metered.	415 8, 793 796 67 863 1, 901 17 2 0 7 1
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:     Dwellings—     Metered.     Unmetered.  Hotels and apartments—     Metered.     Unmetered.  Municipal buildings—     Metered.     Unmetered.  Federal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Miscellaneous—     Metered.  Unmetered.	415 8, 793 796 67 863 1, 901 17 2 0 7 1 1 1
Resident—     Metered.     Unmetered.  Total.  Floating—     Metered.     Unmetered.  Total.  Buildings:  Dwellings—     Metered.     Unmetered.  Hotels and apartments—     Metered.     Unmetered.  Municipal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Unmetered.  Federal buildings—     Metered.  Federal buildings—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Restaurants—     Metered.  Unmetered.  Miscellaneous—     Metered.	415 8, 793 796 67 863 1, 901 17 2 0 7 1 1 1 1 0 69

371.1 (4. 1.4 (4. 1.1. 1.11.11.11.11.11.11.11.11.11.11.1	400 400
Night flow detected by subdivision, per daygallons  Due to inside flow—	432, 480
Metereddo	92, 700
Unmetereddo	<i>82</i> , 700
Due to underground leakage—	•
Service pipesdo	12, 200
Joints on mainsdo	9.000
Valvesdo	17, 800
Totaldo	39, 000
Total	227, 900
Due to municipal buildings, flush basins, horse fountsdo	38, 800
Total flow accounted for	398, 400
Total now unaccounted fordo	34, 080
RENO MISCELLANEOUS.	
Subdivision survey:	•
Started Sept. 27, 1914.	
Started Sept. 27, 1914. Finished Nov. 22, 1914.	
Cost	\$902.77
Population:	
Resident—	
Metered	5, 335
Unmetered	51
	= 200
Total	5, 386
Floating—	
Metered	1,570
Unmetered	1,0.4
Total	1,574
Buildings:	•
Dwellings	
Metered	790
Unmetered	17
Hotels and apartments—	_
Metered	2
Unmetered	0
Municipal buildings— Metered	4
Unmetered	2
Federal buildings—	-
Metered	2
Unmetered	ō
Miscellaneous-	
Metered	45
Unmetered	1
Total—	
Metered	843
Unmetered	20
Night flow detected by subdivision, per daygallons	521,880
Due to inside flow—	70 000
Metereddo Unmetereddo	78, 200
Due to underground leakage—	v
Service nines 4	14, 100
Service pipes do.  Due to Federal buildings and fountains do.	245, 000
Due to municipal buildings, flush basins, horse fountsdo	29, 200
Total flow accounted fordo	366, 500
Total flow unaccounted fordo	155, 380
	,

#### ACCOUNTING AND STORES.

Sir: The following summary of work done by the division under my charge for the fiscal year 1915 is herewith submitted.

### ACCOUNTS.

The method of cost keeping adopted and put into effect July 1, 1913, has been found satisfactory, and only few minor changes made during the year.

The expense account and other tables showing in detail the cost of the operations of the department for the year have been prepared by this division for publication in your annual report.

Eight hundred and twenty-five separate accounts were opened during the year and the following miscellaneous office work done: Vouchers passed and forwarded..... 850 673 Cards mailed..... Official letters written..... 858 Work orders made..... 1,489 Files received and forwarded..... 1,555 Miscellaneous papers handled. 51, 682
Records on cards. 1, 909 Letters filed..... 3,070 Transfer vouchers made..... 611 Pay rolls made..... 1,018

#### STOREKEEPING.

Total..... 66,234

The work of this branch has been most gratifying. Every precaution seems now to have been taken to prevent loss, waste, or deterioration in the portable property of the department in the custody of the stores clerk, Mr. Robertson, whose report is here quoted:

"The value of material issued by this subdivision during the fiscal year 1915 was \$264,838.36, and \$244,152.74 represents the value of material received during the same period.

"The value of monthly receipts and issues of material were as follows:

	Receipts.	Issues.
fuly	22, 652, 35 15, 656, 94 23, 105, 71 24, 401, 25	\$26, 126, 01 23, 007, 30 23, 925, 95 21, 155, 10 20, 329, 32
December		17, 766. 52 19, 285, 40
Pebruary March Aoril	21, 432, 46 17, 014, 48 19, 475, 69	17, 835. 78 26, 419. 67 21, 997. 21
May June	20, 672, 38 16, 959, 58	26, 401, 54 20, 588, 56 264, 838, 36

<sup>&</sup>quot;The value of tools and equipment received during the year was \$170,140.38, and \$1,915.94 represents the value of tools and equipment disposed of during same period.

"At the close of business June 30, 1915, the total value of material in stock was
\$141,790.70, and the total value of tools and equipment in use and in storerooms was **\$**653,780.**4**5.

"The total accountability of subdivision on June 30, 1915, was \$795,751.15.

"The cost of maintaining the storeroom for the fiscal year 1915 was 5 per cent of the value of material issued. Large quantities of tools and equipment were issued to various branches of the department, the value of which was not used in arriving at

the percentage of cost.

"One of the largest and most successful manufacturing companies, the Burroughs Adding Machine Co., after an exhaustive investigation to determine the cost of doing business, states: 'In scientifically managed stores it has been found that the salaries of the clerks average around 9 per cent of the gross sales of these clerks. The salaries of managers, bookkeepers, and other employees who do not sell run the average cost of salaries up to about 13 to 131 per cent of the gross sales.

"Issues from the storeroom may be rightly compared with sales made by a commercial house. In calculating the percentage of cost we have included salaries of all

employees of the storeroom.

"During the year there has been collected, broken up, weighed, and delivered to the contractor old material as follows:

Material.	Quantity.	Value.
Cast-iron scrap pounds Wrought-iron scrap do Barreis	536, 740 25, 220 52	\$2,146.96 100.88 38.50
Total		2, 286. 34

"During the year there was recovered from the scrap pile lead and brass as follows:

Material.	Quantity.	Value.
Leadpoundsbrassdo	3, 5 <b>9</b> 5 5, 092	\$179.75 509.20
• Total		688. 95

## "MISCELLANEOUS WORK PERFORMED.

"There were prepared and forwarded to the superintendent 136 requisitions for material, etc.; weekly reports showing quantities of water pipe and fittings on hand; weekly reports covering work performed; daily statements showing value of material and tools and equipment received and issued and value of material on hand, and tools and equipment in use and in storerooms.

"Semiannual trial balances of material and tool and equipment accounts were taken

in January and June.

'Seventy-nine personal tool and equipment accounts were checked.

"One hundred and forty-eight injured employees were given treatment from first-aid cabinet by employees of this subdivision."

The employees of this division have discharged their duties with commendable loyalty to the department.

> SAMUEL RIGGS. Clerk in Charge.

To the Superintendent, Water Department.

Table I.—Statement of cash account of the water fund, District of Columbia, for the fiscal year ended June 30, 1915, as shown by the books of the auditor of the District of Columbia.

Polomon Tuly 1 1014		
Balances July 1, 1914: In Tressury of the United States	\$24 007 08	
In Treasury of the United States. In hands of disbursing officer, District of Columbia	8, 136, 54	
In hands of collector of taxes, District of Columbia	400. 01	
•		<b>\$</b> 33, <b>444</b> . <b>5</b> 3
Receipts:		•
Water rents.		
Taps and stopcocks	6, 559. 89	
Water-main assessments, principal	62, 192. 54 3, 915. 02	
Sale of old material	3, 532. 77	
*		715, 062. 11
Repayments:		,
Cash, salaries, distribution branch, 1915	137. 50	
High service, 1915		
High service, 1914.	33. 63	
Transfer vouchers—	100 00	
Salaries, distribution branch, 1915	133. 88	
Contingent expenses, 1915 High service, 1915	46. 66 10, 601. 17	
High service, 1914.		
	1,010.00	14, 513. 50
	-	
	=	763, 020. 14
Expenditures:		
Appropriations, 1915—	00 001 10	
Salaries, revenue, and inspection branch	32, 021. 12	
Salaries, distribution branch	54, 516. 19 4, 315. 81	
General expenses.	30, 171. 16	
High service	449, 532. 08	
Reimbursements to the United States, on account of	,	
appropriations for extension of water mains	20, 000. 00	
Refunds	1, 917. 62	
A 5.45 7074		592, 473. 98
Appropriations, 1914—	201 20	
Contingent expenses	391. 39 5, 137. 55	
High service.		
**************************************	21,000.00	27, 394. 87
	_	
Total cash expenditures for the year		619, 868. 85
Dalamana Tuma 90 1015.		
In Treasury of the United States	138, 247. 93	
In hands of disbursing officer, District of Columbia	4, 903. 36	140 151 00
		143, 151. 29
•	-	763, 020. 14
	=	
June 30, 1915:	140 151 00	
Balance to credit, as above	143, 151. 29	
Add transfer voucher credits, due for work done during 1915, not yet received by auditor	4, 443. 01	,
TOTAL HOR LOCALLOCK BY WARTENING	7, 770. UI	147, 594. 30
Less outstanding liabilities close of business June 30, 1915		, 001.00
Unexpended balances of appropriations for 1914 and 1915, not		
available for 1916 expenditures		
•		48, 670. 90
Not belongs amilable Tel-1, 1017	-	00 000 40
Net balance available July 1, 1915	• • • • • • • • • •	y8, y23. 40

Table II.—Cost of work done by the water department for the year ended June 30, 1915.

	Den Alter on A	Material			Charg	Charged to general account.	roount.	
Heads of expenditures.	salaries.	cuts, trans-	penditures.	New work.	Operating expenses.	General repairs.	Replacement of old work.	Stable account, Dr.
Pitomaster division (detection of leaks)  Water mains laid  Office of the water registry state of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control o	88.25.26.28.28.28.29.29.28.29.29.29.29.29.29.29.29.29.29.29.29.29.	26, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 27, 58, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913 28, 913	26, 23, 23, 24, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25	22, 230, 237, 230, 237, 230, 237, 230, 237, 230, 237, 237, 237, 237, 237, 237, 237, 237	834, 088. 26 13, 172. 74 19, 673. 04 3, 631. 28 10, 772. 75 11, 756. 65 46, 313. 27. 29 13, 272. 29 13, 272. 29 16, 648. 06 5, 661. 32 6, 158. 56 6, 158. 56	11, 096.00 17,772.00 1, 770.11 1, 412.50 6, 867.73 458.43 458.43 890.07	\$25, 392, 16	825, 386, 98
Expenditures: Per dem psy rolls Belaries Total services Material expended, cuts, etc. Geres expenditures Lees transportation, Cr. Net expenditures	8310, 286.54 86, 399.81 396, 666.38 282, 791.37 679, 447.72 34, 396.98 644, 080.74	SUMMARY.	RY. Charged to— New work Operating expense. General repairs. Replacement work	x petises afri. it work			2007, 430. 83 2005, 904. 82 85, 383. 43 20, 382. 16	Per cent. 430.83 41.6 994.83 41.8 892.16 3.9 8.00.74 100.0

TABLE III.—Statement of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work.

	In service June 30, 1914.	Laid dur- ing year ended June 30, 1915.	A bandoned during year ended June 30, 1915.	In service June 30, 1915
Diameter:				
75-inch linear feet.	600	l		600
48-inchdo	44, 172			44, 172
42-inch do	23			23
36-inchdo	59,067	2,009	1,639	59, 437
<b>30-inch</b> do	57,995	2,000	-, -, -,	57, 995
24-inchdo	26,398	15	5	26, 408
<b>20</b> -inch	98,868	l īŏ	10	98, 868
16-inch	16, 219	1,373	28	17, 564
12-inch	359,698	5,556	2,043	363, 211
10-inchdodo	9, 109	, .,	-,,,,	9, 109
8-inch	744, 965	46,868	827	791,006
6-tnch	1,471,734	1,355	1.541	1,471,548
4-inch	152, 323	1,974	1,770	152, 527
3-inchdo	79, 235	863	7110	79, 988
Totaldo	3, 120, 406	60,023	7,973	3, 172, 458
Stop valves	9,302	553	201	9, 654
Fire hydrants.		269	184	3, 374
Public hydrants		l ~~š	8	217
Sanitary fountains.		ا ءُ	l	13
Horse fountains		l ī	i	152
Public wells (deep).		l <del></del> .	l	44
Public wells (shallow).		l		

TABLE IV.—Statement of the length and cost of water mains laid from July 1, 1878, to June 30, 1915, paid from water department funds.

	In service June 30, 1914.	Laid dur- ing year ended June 30, 1915.	In service June 30, 1915.
3-inch	76,628	424	77,052
4-inch	115, 582	1,852	117, 434
6-inchdo	1,082,238	954	1,083,192
8-inchdo	693, 544	44,829	738, 373
10-inch	6,741		6,741
12-inch	318, 783	4,763	323, 546
16-inch	16, 265	1,373	17,638
20-inch	88,788	10	88,798
24-inch	14,494		14,494
<b>30</b> -inch	20, 437		20, 437
86-inchdo	36,312	1.936	38, 248
42-inchdo	23		23
48-inch	14,309		14,309
Total	2, 484, 144	56, 141	2,540,285

 Total cost to June 30, 1914.
 \$3,584,312.51

 Total cost for year ended June 30, 1915.
 102,522.04

 Aggregate cost to June 30, 1915.
 3,686,834.55

Table V.—Statement of the average cost per foot for laying water mains for the year ended June 30, 1915.

Character of pavement cut.	Size of pipe.	Linear feet.	Cost for labor per linear foot.	Cost for material cuts to pave- ments, etc., per linear foot.	Total cost per linear foot, laid.
Unimproved.  Macadam Unimproved Macadam Sheet asphalt. Unimproved.  Macadam, etc.	8 8 12	366 1,395 783 27,490 14,188 1,943 4,243 1,373 1,936	\$0.446 .342 .496 .339 .352 .489 .374 .649 2.008	\$0.351 .608 1.081 .859 .893 1.275 1.206 2.213 5.589	\$0.797 .950 1.577 1.198 1.245 1.764 1.580 2.862 7.597

## REPORT OF THE WATER REGISTRAR.

OCTOBER 2, 1915.

Sir: I have the honor to submit the annual report of the revenue and inspection branch of the water department, showing in detail the work accomplished during the fiscal year ended June 30, 1915.

#### INSTALLATION OF METERS.

The work during the year consisted in metering that portion of the first high-service system embraced in the territory between Sixteenth Street and Rock Creek, L Street and Florida Avenue NW., First and Fifth, East Capitol, and E Streets SE. Meters were also installed in areas previously covered where new houses have since been erected.

In the installation of this year quite a number of private services were encountered, and, being of wrought iron and in a bad condition from long use and corrosion, it was necessary to disconnect the premises supplied through them and connect direct to the water main.

In all cases, as heretofore, where a curb cock or box was missing a new one was installed.

The number of meters installed during the year was 6,448 and the number discontinued was 198, making a total now in use 48,411. The following shows the average cost of installing a meter:

Material..... 2. 23 3, 45

The following shows the average force engaged:

In charge, master plumber (half time ¹)	1
Laborers.	
2-horse teams	

The following additional work was performed in connection with the installation of meters: Adjusting meter pits to grade; removing meters for test, etc.; setting temporary meters, etc. This work was handled by the following force:

In charge, master plumber (half time ¹)	
Laborers.	Z
1-horse wagons	2

In addition to the above, such assistance as may be necessary from time to time is given by the different forces engaged on other work when this class of work becomes heavy.

The method of handling the work of reading meters is fully covered in last year's report, so it would seem unnecessary to repeat it here, except to state that, as formerly, private meters in business establishments where the consumption exceeds 100,000 cubic feet (748,000 gallons) per quarter are read weekly. These readings are recorded on a card furnished by this office and posted in a convenient place on the premises, so that the consumer may be in close touch with the amount of water consumed. Private meters where the consumption does not exceed 100,000 cubic feet per quarter are read seven times a year; fire-service meters are read monthly.

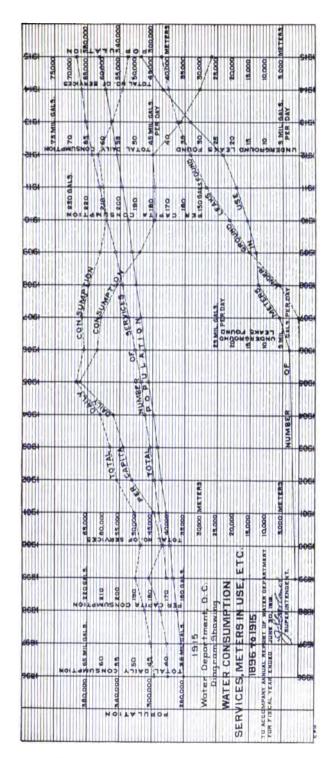
District of Columbia meters in municipal buildings are read monthly and the responsible party notified if leaks or wastes are found. District of Columbia meters installed on service pipes supplying private residences are read six times a year.

### ORGANIZATION.

For convenience in handling the work the force is subdivided as follows:

Subdivision 1 (E. H. Grove in charge). Meter accounts, meter computations, meter readings, examinations relative to excessive consumption, tapping of water mains, introduction of water into premises, inspection of new services and repairs made by plumbers, leak records, reports, records, and correspondence.

<sup>&</sup>lt;sup>1</sup> As this man also has charge of taking out meters for test and repairs, etc., only half of his time is properly charged to installation.



Subdivision 2 (W. R. Chapell in charge). Making bills for meter and flat-rate accounts, preparing cut-off notices for nonpayment of water rents, notifications for

nonpayment.

Subdivision 3 (J. A. Mudd in charge). The work of this subdivision consists of the verification of information furnished by owners of premises where water is to be introduced as to house, lot numbers, and rating, and also changes in street names and house umbers and the entry of same on the office records.

Subdivision 4 (C. F. Eckloff in charge). The duties of this subdivision consist of

examining all permits for the introduction of water, the issuing of taps and curb cocks,

and permits for the use of water for building purposes.

Subdivision 5 (H. C. Schaeffer in charge). Records of meter installation, repairs, cost of maintenance, and inspections in the field.

Subdivision 6 (A. C. Parker in charge). Posting, checking, and auditing accounts,

care of meter, and flat-rate account cards and filing of same.

Subdivision 7 (A. Marks in charge). Leak examinations; cutting off and turning on water; locating services, taps and curb cocks; repairs, and connecting of services for which the water department is responsible; repairs to curb-cock box as, etc.

Subdivision 8 (W. F. Sullivan in charge). Meter installation and removal of meters

for repairs.

## LEAKS AND WASTES.

During the year 50,054 examinations for leaks were made, this included ordinary leaks at house fixtures and the more complicated cases of underground leaks, the detection of which required considerable time and the employment of experienced men.

Five hundred and nine abandoned water services were disconnected at the tap in the main, of this number 149 formerly served houses that have been torn down; the remainder were installed many years ago and in a large number of cases never used. This latter class of services has caused considerable trouble in the past, owing to the fact that in some cases there was either no data as to their installation or the location was so indefinite as to be practically useless. Leaks from this source were difficult to locate.

The water supply was cut off from 4,543 houses this year during the period of vacancy which has resulted in the saving of considerable water and has prevented the reoccupying of these houses without the knowledge of the office, thereby insuring full pay-

ment for the time water was used.

Six thousand and seventy-nine taps and curb cocks were located during the year. This work was done in advance of the meter installation, thereby rendering it unnecessary to defer the installation of a meter on account of the indefinite location of the service. For this purpose the Grove electric indicator was used. This instrument

was employed during the year in 1,519 cases.

The subdivision engaged on leaks and wastes also performed the following work: 166 new curb cocks installed or old ones repaired; 28 services repaired; 102 street washers repaired, replaced, or removed; 4 pressure regulators installed; 60 services lowered to grade; 52 private services disconnected, and 114 houses connected direct to mains. They also assisted from time to time in the removal of meters for repair and test and replacing them with others. Some of the old services abandoned formerly supplied two or more houses, which accounts for the difference in the number of services.

#### SERVICE CONNECTIONS.

There were 1,573 new service connections made, inspected, and locations recorded during the year; also 979 repairs, etc., to water services and appurtenances were inspected and recorded.

This work has been handled by the regular inspector with some assistance from the office force, and inspections have been made in the majority of cases within one hour

of the time specified by the plumber doing the work.

Owing to the reduction in the number of new service connections, the tapper and assistant tapper have been used in connection with leaks and wastes and the taking out and replacing of meters, thus keeping these branches of the work up to date. This detail did not occasion any loss of time in connection with the tapping of water mains, and saved the employment of more men in the subdivision to which the assistance was given.

### REVENUES.

The table of comparative revenues shows a total collection of \$763,020.14.

There has been a drop in the revenues for water rents this year, which is partly attributable to the decrease in building operations and the consequent lessening of the number of new services installed, and also to the change in the charge for water

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from the flat to the meter rate, a loss which was fully anticipated. From this it will be seen that meters have proved of considerable benefit to the consumers in general from a financial point of view, and their installation has been of the greatest value to the District of Columbia in cutting down the waste of water. Their use is now so universal that any defense of their employment would be superfluous. It seems well, however, to state that the results obtained by their adoption in this city have been most gratifying, not solely on account of the enormous reduction in the waste of water, which was the primary object of their installation, but since by their use an absolutely equitable method of charging for water has been established.

#### TABLES

Table 1 shows statement of collections and expenditures.

Table 2 shows comparative statement of revenues.

Table 3 shows number of meters in service.

Table 4 shows number of meters repaired.

Table 5 shows consumption of water in premises in which District of Columbia meters were installed and a comparison with the flat rate accounts as to amounts paid under each.

Table 6 shows consumption of water in building owned or controlled by the District

of Columbia.

Table 7 shows consumption of water in charitable institutions, hospitals, etc., which receive an allowance of free water.

Table 8 shows consumption of water in business establishments required by law to meter at their own expense.

Table 9 shows miscellaneous work performed.

Table 10 shows general information.

### CARD-RECORD SYSTEM OF METER ACCOUNTS.

By means of a card system perfected by this office, in which the color scheme is further improved by the introduction of a series of stripes, tabs, and incisions, it is possible to detect a misplaced card in the entire system within a few minutes, thus avoiding delay in locating accounts. There are now 48,411 accounts kept on these cards.

## PRINTING.

There were 887,016 blank forms, cards, etc., printed during the year under 318 different orders, covering work of this character required by the water department.

The printing plant, while only of sufficient capacity to handle the work of the department has proved its value since its inception from an economical standpoint in money and time.

## WATER RATES.

There has been no change in water rates during the past year. The rate for domestic purposes is charged according to stories and front feet. On all tenements two stories high with a frontage of 16 feet or less, \$5 per annum. For each additional front foot or fraction thereof greater than one-half, 31 cents. For each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, volume of business, and water facilities and rate from \$1 to \$25. If the flat rate on business establishments reaches \$25 or more, the owner or occupant is required to install a water meter at his

own expense.

Meter rates.—A minimum rate of \$4.50 per annum is charged against all consumers supplied with water through meters, which allows the use of 7,500 cubic feet of water during the fiscal year, water used in excess of this quantity being charged for at the

rate of 4 cents per 100 cubic feet.

In reference to the allowance under the minimum rate it has been determined by well-known authority on the subject that an average of 25 gallons per capita per diem is ample for domestic purposes. This has been fully established by the experience of several municipalities where metering is universal. In this city there is an allowance of 7,500 cubic feet, or 56,100 gallons, for the minimum payment of \$4.50. This would mean 153.7 gallons per day per house, or 25.6 gallons, per capita per diem for a family of six.

#### CONDITION OF THE WORK.

Notwithstanding the fact that there has been a large increase in business over that of previous years, owing to the change from the flat rate to the meter system, the condition was met without any addition to the force and the work was up to date at the close of the year.

This result was obtained by the faithful cooperation of the employees for which I now take pleasure in expressing my appreciation.

Very respectfully,

GEO. W. WALLACE,
Water Registrar.

The Superintendent, Water Department.

TABLE 1.—Statement of collections and expenditures.	
Water rents: Flat rate	\$177, 252. 16 458, 560. 20 3, 049. 53
Water-main tax, principal and interest       \$66, 107.56         Taps and stopcocks       6, 559.89         Miscellaneous receipts       3, 532.77	638, 861. 89
Total receipts	76, 200. 22 715, 062. 11 14, 513. 50
Total receipts and repayments.  Balance on hand July 1, 1914.	729, 575. 61 1 33, 444. 53
Receipts and repayments, including balance brought forward from previous year	763, 020. 14
Expenditures: Appropriations 1915	592, 473. 98 27, 394. 87
Total cash expenditures for year	619, 868. 85 143, 151. 29
June 30, 1914:	763, 020. 14
Balance to credit of fund as above \$143, 151. 29 Add transfer-voucher credits due for work done during 1915 4, 443. 01	
On account of above balances there are outstanding liabilities amounting to	147, 594. 30
1915	
ward to 1916 account	147, 594. 30

<sup>&</sup>lt;sup>1</sup>The above belance does not indicate a surplus in the water fund of receipts in that it does not take into consideration outstanding obligations incurred but not paid during the fiscal year.

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Table 2.—Statement of cash receipts and expenditures of the water fund, District of Columbia, for the fiscal years from June 30, 1903, to June 30, 1915.

Year.	Water rents.	Water- main tax, principal and in- terest on same.	Taps and stop- cocks.	Miscel- laneous receipts.	Repay- ments, deposits, and special appropri- ations.	Total re- ceipts and repay- ments.	Receipts and re- payments, including balance brought forward from year to year.	Expenditures.
1903 (balance brought for- ward)	362,266.54 468,889.47 479,981.22 502,894.45 509,769.23 521,581.78 545,405.47	32,217.84 34,395.76 51,319.62 57,462.39 57,654.06 76,905.15 101,987.53 122,458.81	8,603.80 9,100.00 9,487.10 8,688.10 10,674.15 11,794.78 8,824.35 11,438.65	2,819.95 23.60 6,254:73 1,376.24 1,530.08 1,715.20 960.04 2,817.50	47, 984. 45 49, 875. 59 26, 498. 58 94, 520. 49 110, 441. 39	423, 450. 98 430, 973. 51 555, 863. 43 595, 492. 40 622, 628. 33 626, 682. 94 727, 974. 19 792, 561. 82	\$758, 460. 67 473, 806. 07 467, 568. 32 587, 770. 31 652, 853. 32 666, 270. 89 710, 361. 50 818, 082. 00 879, 760. 24	437, 211. 26 435, 661. 44 580, 379. 39 609, 240. 76 582, 592. 33 620, 243. 69 730, 863. 56 769, 530. 18
1913 1914 1915	646, 396. 15	138, 693. 75 86, 379. 21 66, 107. 56 877, 295. 32	6,118.20 6,559.89	4,253.20 3,532.77	14,923.91 24,131.64 14,513.50 457,202.83	767, 178. 40 729, 575. 61	828, 396. 69 763, 020. 14	794, 952. 16
1916 <sup>1</sup> 1917 <sup>1</sup>	636,000.00 634,000.00	55,000.00 50,000.00		3,000.00 3,000.00		2 700,000.00 2 693,000.00		

<sup>1</sup> Estimated.

TABLE 3 .- Water meters.

Name.	inch.	‡-inch.	1-inch.	1 <del>1-11-</del> inch.	2- inch.	3- inch.	4- inch.	6- inch.	8- inch.	Total.
American	160	4	10	4						170
American, new model				•••••		<u>.</u> .				8
Crown	2	11	35	28	10	9		2		97
Empire	51		.2		8	8	1			60
Enarc		17	17	27	7		• • • • • •			68
Eureka							1			
Gamon	8									1
Gem		•••••			23 28	17	8	1		41
Hersey, disk		511	43	94	28	14	2	1		693
Hersey, model F	22,602									690 22,600
Hersey, torrent						2	<b></b>			_ 2
Hersey, detector	l				l	6	6	9	3	24
Keystone, Pittsburgh disk Keystone, model W	1	27	38	33	21	25	3			147
Keystone, model W	12,385					l				12,38
King	152		3	5	l	l	l			160
Lambert	1,112	197	128	106	59	16	7	1		1.626
Lambert, special	453					l				451
Nash	1 184	471	483	272	124	39	14	2		1.53
Niagara	3	60	49	64	31	i				200
Standard	l			4		I				
Thomson	11	12	45	37	23	1	i			120
Trident, disk	2,241	69	106	87	27	2				2.53
Trident, crest					2	5	13	1		21
Trident, compound	1				_	ž	ĩ	•		-7
Union		4	9	7	4		i	•••••		2
Worthington	198	47	52	26	21	ii	انة ا	• • • • • •		36
Worthington, model D	26		-	-~			•	•••••		2
Worthington, model G (old)	57		•••••	•••••	•••••	•••••	•••••	•••••		57
Worthington, model G (new)	4,882							• • • • • •		4,882
	-,000							•••••		2,00
Total	44.487	1,430	1.020	794	383	154	62	17	3	48,406
Registers.			_,							~, ~ <u>s</u>
Total meters and registers.		i l			1				1 1	48, 411

<sup>1</sup> One 1-inch meter.

<sup>&</sup>lt;sup>2</sup> Estimated total revenue.

Meters installed to June 30, 1914.  Meters installed in private residences and business establishments not required by law to meter, 1914-15.  Meters installed by private parties	42,156 6,346 102
Total       District of Columbia meters abandoned, 1914–15   114   Private meters abandoned, 1914–15   84	48,604 198
Total number of meters in service June 30, 1915	48, 406 5
Total number of meters and registers.	48,411
Water services in use June 30, 1914. Water services installed 1914-15.	66,914 1,600
Total Water services abandoned, 1914–15.	68,514 149
Water services in use June 30, 1915. Water services metered.	68,365 48,411
Water services unmetered. Percentage of services metered.	19,954 70

TABLE 4.- Meters repaired.

	inch.	inch.	inch.	inch.	2- inch.	3- inch.	4- inch.	6- inch.	Total.
Meters repaired	2,339	155	108	65	38	13	15	3	2, 736
Abutments	45	9	15	4	1				74
Bonnets	14	9	5						74 28 37
Bonnet screws		2			1				37
Bottom cases	8		· • • • • • •	1	• • • • • •				9
Controllers	19	1	8						23
Dial plates	_3	2	2	<u></u> -	•••••				7
Disks	778	84	53	29	10	2	2		958
Disk chambers	7	1							8
Disk shafts	31	3	3			1			38 72
Flange bolts	53	9	10				<b></b> .		72
Gaskets, flange	260	14	12	5	3				294
Contrate registers	36					l	l		36
Gears and register wheels	170	23	6	1	1		l		201
Glasses	66	8	5	1 1	3	3	1	2	89
Lids	44	9		2	1	l	l		56
Pointers	29				1				56 29
Registers	785	12	1	6	2		3	1	810
Register spindles				ļ	ļ <del>.</del> .			l	27
Top cases	-6	2			1				, a
Train gears (intermediate)	134	71	49	22	14	4	4		298
Total parts	2, 549	259	164	71	37	10	10	3	3, 103

 Meters in service, including registers
 48,411

 Cost of labor and material for maintenance
 \$12,744.02

 Average cost per meter for maintenance
 \$0.26

Table 5.—Consumption of water in premises in which District of Columbia meters were installed and a comparison with the meter rate and the amount formerly paid under the flat rate.

Consumption (cubic feet).	Accounts.	Meter rate.	Flat rate.	Average meter rate.	Average flat rate.
1 to 3,500 3,500 to 5,500. 5,500 to 7,500. 7,500 to 8,500. 9,500 to 9,500. 9,500 to 10,500. 10,500 to 11,500. 11,500 to 12,500. 12,500 to 13,500. 12,500 to 13,500. 13,500 to 15,500. 14,500 to 15,500.	4,893 5,784 2,065 2,194 1,868 1,540 1,263 1,069 877 720 556	\$14, 323. 50 22, 018. 50 25, 028. 00 9, 705. 50 11, 189. 40 10, 274. 00 9, 086. 00 7, 986. 90 6, 226. 70 5, 400. 00 4, 392. 40 3, 527. 50	\$18, 481, 25 29, 554, 80 36, 939, 10 13, 710, 90 15, 182, 85 11, 378, 55 9, 411, 80 8, 293, 50 6, 897, 10 5, 759, 55 4, 506, 30 3, 538, 50	\$4.50 4.50 4.70 5.10 5.50 6.30 6.70 7.10 7.50 7.90 8.30	\$5.80 6.04 6.38 6.63 6.92 7.11 7.38 7.45 7.61 7.86 7.99 8.10 8.32
Total	26, 457	114, 396. 20	176, 945. 60	5.36	7.19

# District of Columbia meters.

Meters in operation. Meters installed to take effect July 1, 1915.	38, 621 6, 329
Total meters. Abandoned during the year.	44,950 107
Total meters in service July 1, 1915.  Amount paid.	44, 843 \$212, 857. 05
Average payment for each. Average payment, flat rate-accounts.	\$5.51 \$7.16
Difference Number of flat-rate accounts	\$1.65 24,758

Table 6.—Meters installed in various buildings owned and controlled by the District government.

Class of building.	Annual consump- tion.	Prem- ises.	Meters.	Class of buildings.	Annual consump-	Prem- ises.	Meters
schools.	2 20 5			schools-contd.	F		
	Cubic feet.		100	-	Cubic feet.		1 2
Abbott	119, 400 362, 700	1	1	Grant	128, 200	1	
Adams	429, 700	1	1	Hamilton	214, 200	1	
Ambush	125, 800	1	i	Harrison	92,200	i	100
Amidon	1 75, 900	î	î	Hayes	294, 400	i	1 3
Armstrong	529,500	î	î	Henry	199,900	î	1 9
Banneker	144, 300	î	î	Hilton	129, 300	i	1 4
Bell	783,900	1	î	Hubbard	. 164, 100	î	11 8
Benning	4,700	1	1	Hyde	342,900	1	1
Berrett	81,800	1	1	Jackson	187, 900 422, 300	1	
Birney	267,500	1	1	Jefferson	422,300	1	1
Blair	307,900	1	1	Johnson	146, 100	1	
Blake	193, 100	1	1	Jones	282, 400	I	
Blow	353, 300	1	1	Ketcham	425, 100	1	
Bowen (S. J.)	79, 700	1	1	Kenilworth	25,300	1	11 5
Bowen (S. J.)	310, 300 96, 800	1	1	Langdon	122,500	1	1
Bradley	397, 900	i	1	Langston	184, 400	1	
Briggs	358, 700	1	î	Lincoln	135,000	1	1
Brightwood	106, 100	î	î	Logan	59,000	i	
Brightwood Park	75, 300	1	i	Lovejoy	288, 100	i	1
Brookland	130, 700	1	2	Ludlow	765, 200	î	
Bruce	215, 400	1	1	M Street High	421,500	1	
Bryan	309,900	1	1	McCormick	27, 300	1	1
Buchanan	299, 400	1	1	McKinley Manual	2		
Bunker Hill	74, 800	1	1	Training	1,098,900	1	
Business High	1,140,700	1	1	McKinley Manual		1.0	
Carberry	299, 400	1	1	Training	1 900	1	
Chevy Chase	529,600 232,800	1	1	Madison	242,000	1	1
Cleveland	583, 000	1	1	Magruder	218,700	1	
Cook	144,000	1	i	Street	146,900	1	
Henry D. Cook	204, 300	1	î	Manual Training,	110, 500		
Corcoran	235,900	1	î	Wisconsin Avenue.	180, 100	1	
Cordoza	139, 300	1	1	Maury	76,500	î	1
Cranch	254, 800	1	2	Military Road	175,000	1	
Crummell, Alex	403, 200	1	1	Monroe	462,300	1	
Curtis	133, 100	1	1	Montgomery	219, 200	1	
Dennison	8,000	1	1	Morgan	274, 400	1	
Dent	298, 600	1	1	Morse	147,400	1	
Douglas	353, 400	1	1	Mott (new)	574,000	1	
Eastern High	130, 100	1	1	Mott (old)	138,900	1	
Eston Eckington	248, 300 411, 800	1	1	Orr	342,900	1	
Edmonds	310, 700	î	î	Payna	972, 200	î	
Emery	398,500	î	î	Peabody and annex	470, 800	î	
Fillmore	187,800	î	î	Petworth	403,000	î	
Force	413,800	1	1	Phelps	342, 200	i	1
Fort Reno	7,900	î	1	Pierce	176,700	î	1
Franklin	549,800	1	1	Polk	164,300 264,700	1	
French	86,800	1	1	Potomac	264,700	1	
Jage	634, 200	1	1	Powell	257,900	1	
Gales	25,300	1	1	Randall	196, 100	1	
Parfield	1 500	1	1	Randall Highlands	117,000	1	
Jarnet	267, 400	1	1	Reservoir	492,000	1	
diddings	346, 300	1	1	Ross	563, 300	1	

<sup>1</sup> For fractional part of the year only.

3 Water off.

TABLE 6.—Meters installed in various buildings owned and controlled by the District government—Continued.

Class of building.	Annual consumption.	Prem- ises.	Meters.	Class of buildings.	Annual consumption.	Prem- ises.	Meters.
SCHOOLS—contd.				FIRE-ENGINE HOUSES,			
	Cubic feet.	1	İ	ETC.—continued.			
Simmons, power	139, 400	1	1	Truck houses:	Cubic feet.		ŀ
nient	303, 200	1 1	1	No. 1	111, 100	.1	1
Slater	190, 500	1	1	No. 2	64, 400 94, 700	• <u>1</u>	1
Slater Smallwood Stanton	139, 400 1 300	1	1	No. 3 No. 4	24, 800	1	1 1 1
Stevens	1,373,300 272,100 286,500 171,900	1	1	No. 5 No. 6	29, 200 47, 700	1 1	1
Sumner	272,100	1	1	No. 6	47,700 95 900	î	1 1
Syphax Takoma	171,900	1	i	No. 7 No. 10 Chemical engine	95, 900 88, 800	li	i
Taylor	386, 900 269, 000	1	1	Chemical engine			ļ
Tennally and Annex. Thomson	I ?AAR 12∩∩.	1 1 1	1 1	houses: No. 1	23,800	1	1
Threlkeld	27, 500 165, 200 237, 900 286, 200	1	1	No. 2	. 23,800 64,700	1	1
1 ODET	165, 200 237 900	1	1	No. 3	55,300	1	1
Towers	286, 200	1	1	No. 5 No. 17	62, 800 131, 700	i	ī
Tyler Van Buren		1	1	District of Columbia Firefighter (boat)	117, 100	1	1
Van Ness	132, 200	1	1	Firengnier (Dost)	117,100		
Van Ness	143, 300 132, 200 396, 700	1	1	Total	2, 437, 700	36	36
Webb	192, 400 386, 700 157, 000	1	1	POLICE STATIONS.			
Weightman	157,000	1 1 1	1.				}
West	278,300	1	1	No. 1	102,900	1	1
Wheatley Wilson	188, 400 114, 200	1 1	1	No. 3	158, 000 253, 200 478, 700	1 1	1 1
Wilson, Normal. Woodburn	114, 200 852, 300	1	1	No. 4	478, 700	1	1
No. 169	18,800	1	1	No. 5	53, 400 578, 600	1 1	1
		ļ		No. 5	589, 000 115, 800	1 1	1
Total	37, 534, 500	139	143	No. 8	115, 800	1	1
annexes.				No. 9 No. 10	145, 400 159, 600 139, 400	li	i
TT - 1 1 O4-	l			No. 11. Substation, Tennal- lytown, D. C.	139, 400	1	1
Warder and Otis Streets	93.700	. 2	1	lytown D.C.	11.300	1	1
822 Eighth Street NE. 730 Twenty-fourth	93,700 44,100	ī	i		11,300 72,900 38,500	1	1
730 Twenty-fourth Street NW	3,800	1	1	House of detention	38, 500	1	1
Eleventh, between F and G Streets NE	1	1 *	-	Total	2,896,700	14	14
and G Streets NE 1407 Thirty-third	5,000	1	1	li i			
1407 Thirty-third Street NW	9,000	1	1	PUBLIC PLAYGROUNDS.			
837 Shepherd Street	1		1	Columbia Heights	53, 200 72, 200	1	1
NW	12,600	1	1	Rosedale	72,200 137,600	1	1
Total	168, 200	7	6	First Street, between	201,000		-
FIRE-ENGINE HOUSES,				New York Avenue and M Street NW	45,000	1	1
ETC.	1			H			
Engine houses:		١ .		Total	309,000	4	4
No 1	63,800	1	1	PUBLIC CONVENIENCE			
No. 2. No. 4. No. 5.	190, 400 30, 200 44, 000	1	1	STATIONS.		1	
No. 5	44,000	1 1	1	Seventh Street and			į
		1	1	Pennsylvania Avenue NW	464,000	1	1
No. 7	56,500 97,400	1	1	Pennsylvania Ave-	101,000	-	
No. 8 (stable)	6,300	1	i	nue, between Thir-			
No. 9	35,100	1 1	1	teenth and Four- teenth Streets NW. Ninth and K Streets	991,600	1	1
	72,500 41,700	li	i	Ninth and K Streets	1 454 000	1	1
No. 12	(*)			NW	1,656,900		
No. 12	84, 100 251, 600	1 1	1 1	Total	3, 112, 500	3	3
No. 15	36, 100	1	1	STABLES.			
No. 16 No. 18	38,300 177,100	1 1	1	Ambulance (Board of			ł
No. 20	(177,100	J	<b> </b>	Charities)	15,300	1	1
No. 20 No. 21 and No. 9	1	١,		District of Columbia	270 200	1	2
Truck No. 22	62,700 44,300	1 1	1 1	government stable. District of Columbia	370,300	•	1 1
No. 22 No. 23 No. 24	44,300 29,900	1	1	ll engineer depart-	440 000	1	3
No. 24	31,800	1	, 1	ment stables	442,900		, 3

<sup>&</sup>lt;sup>1</sup> For fractional part of year only.

Meter temporarily removed during year.

Table 6.—Meters installed in various buildings owned and controlled by the District government—Continued.

Class of building.	Annual consumption.	Prem- ises.	Meters.	Class of buildings.	Annual consumption.	Prem-	Meters.
STABLES—continued.				MISCELLANEOUS con.			
Parking commission stable	Cubic feet. 40,500	1	. 1	Municipal fish wharf. Naval Battalion	Cubic feet. 829,000	1	
Street-cleaning de- partment stable	1,769,400	1	2	wharf	142,800	1	2
Total	2, 638, 400	5	9	koma Park	41,300	1	1
WORKHOUSE				Property yard, Dis- trict of Columbia Public drinking foun-	1 8,700	1	1
GROUNDS. Superintendent's				tain	56, 500 98, 000	1	1
house	26, 100 19, 500	1	1 1	Repair shops, Dis- trict of Columbia	1 47,600	1	,
Wards 1, 2, 5, 6, 7 Receiving ward	. 218,600 316,000	Î Î	i	Outfall sewer station. Automatic flush to	. 98,000	ī	ļi
Nurses' home Greenhouse	44, 400 6, 900	i	Î Î	sewer, Sixteenth Street and Piney			1
Pumping station and deadhouse.	212, 300	1	1	Branch Road	2,170,600	1	1
Total	843, 900	7	7	dead end of sewer, N Street between			ļ
INDUSTRIAL SCHOOLS.	<del></del>			New Jersey Avenue and Fourth Street			1
Home for Aged and				NW Rock Creek Park, su-	50,500	1	1
Infirm and Indus- trial Home School for Colored Chil-				perintendent's house	8,500	1	1
drenIndustrial Home	3, 217, 400	1	1	cleaning depart- ment.	1 4, 100	1	1
School	1,024,900	1	4	Total	4,643,800	21	21
Total	4,242,300	2	5	RECAPITULATION.			
Asphalt plant Cement warehouse	237, 300 9, 800	1 1	1	Schools and annexes Fire-engine houses,	87,702,700	145	100
Columbus fountain and two small foun-	Í			Police stations	2, 437, 700 2, 896, 700	36 14	36 14
tains Dog pound	1 76, 700 <b>236,</b> 000	1 1	1 1	Public playgrounds Public convenience	308,000	4	•
Lodge house Bright- wood Reservoir	29, 200	1	1	stations	3, 112, 500 2, 638, 400	3 5	;
Market master's office Eastern Market	241,100 1 152,200	1	. 1	Workhouse grounds Industrial schools	843, 900 4, 242, 300	7 2	5
Morgue Municipal lodging	43,200	1	1	Miscellaneous	4,643,800	21	25
house	62,700	1	1	Grand total	58, 826, 000	237	256

<sup>&</sup>lt;sup>1</sup> For fractional part of year only.

TABLE 7.—Premises which receive an allowance of free water.

Names.	Number.	Consump- tion.	Allow- ance.	Ex- ceeded.	Paid.	Meters.
Churches. Hospitals. Homes. Orphan asylums. Nelghborhood houses. Schools.	22	Cubic feet. 3, 643, 700 14, 003, 000 4, 355, 600 2, 036, 100 59, 400 2, 618, 700	Cubic feet. 5,882,360 9,410,100 3,429,345 2,542,000 723,100 6,421,245	18 8 9 3	\$377. 36 2, 050. 92 392. 16 75. 72 98. 88	104 13 25 13 4 14
Total	144	26, 716, 500	28, 408, 150	39	2, 995. 04	176

	Cubic feet.
Amount of water consumed	26, 716,500
Amount of water used in excess of allowance	7,397,699
Total amount allowed free	19,318,820

TABLE 8.— Miscellaneous business establishments under meter and amount of water consumed for the fiscal year 1915.

Miscellaneous business		cubic feet r less.		to 100,000 bic feet.		0 to 1,000,000 bic feet.		,000 cubic and over.	To pres
establishments.	Prem- ises.	Cubic feet.	Prem- ises.	Cubic feet.	Prem- ises.	Cubic feet.	Prem- ises.	Cubic feet.	clas
battoir partments rt gallery akeries					2	456, 700			
pertments	9	40, 200	414	21,714,100	383	90, 849, 300 261, 500	12	18, 159, 600	8
Akeries	i	4,400	20	559,600	12	3, 553, 900	1	1,341,800	
all grounds unks.	2	11,500	····· <del>,</del>	926 400	1 2	363,700	J		1
ahen ahena	1 7	2,100	l ġ	338, 400 287, 600		•	1		1
ttling workswiing alleys	1	7,500	7	287, 600 277, 500 104, 300	8		11	1,099,500	1
wiing alleys	•••••	•••••	2	104,300	1 2	1 038 300	5	13, 461, 600	]
Deteries			7	208,800	3	602, 200	l	1 -	ı
nbhouses	4	21,900			9	2,824,500	3	6,609,700	1
al yards	. 6	25, 300	11	250, 200 322, 600	3	641,500 2,907,600		6, 103, 600	1
ug stores	1 1	4,000	21	935, 300	10	1.824.400	1	0,200,000	1
e works	1	2,000	15 15	692,800	1	198,000		• • • • • • • • • • • • • • • • • • • •	1
orists	8	14,800			15	2, 122, 100 2, 887, 500	2	1,352,900	1
rages s works			4	177,300	2	748,600	2	2,906,900	1
ilis	8	18,000	19 1		6	891.400	1		l
epitals			ءُ ا	124, 200		745,500	i	1,034,700	1
xels			25		39		12	26,620,800	•
yards and plants	•••••	•••••	4		5	2, 275, 200 4, 538, 200	7 10		
undries imber and saw mills		•••••	1 7	71,600 254,700	3	669.500		20, 320, 300	
unch rooms	1 3	12,300	37	1,733,400	7				1
chine shops	1 2	1,300 12,000	5	209,300 156,790	12			14 694 500	
rkets. fice buildings	5	32,600	130	1 0,027,100	, ,,	18, 544, 600	ិ និ	14,636,500 12,498,000	1
cking houses			1 7	49,600		18, 544, 600 115, 500 608, 900			1
otograph galleriesol rooms	1	6, 100	1 2	97.700		005,900			l
Inting offices	1	6,600	12	675,300	7	2, 137, 600			
ivate residences (private meters).	34	112,800	197	5, 895, 600	41	8, 464, 760	1	2, 222, 800	
AA TPAAT	•	112,000	1	27,600	1	0, 101, 100	l <u>.</u>	2, 222, 000	1
mironos, omces and yards	4	12,900	6 2	2,740,700	4	96,049,100			1
ores (department) ores and miscellaneous	52	511,900			149	1,453,100 4,694,700	3	8, 797, 500	١,
loons and restaurants	11	36, 400	265	112 ANS 500	. 63	10, 304, 000 4, 671, 700	í		
hools and seminaries	5	19,600	352	1,558,400	20 19	4,671,700	3	4,415,500 8,352,100	
nall manufactories	11	40,800 36,300		2.381.400	17	3,660,800 3,666,600	3	8, 852, 100	
oneyards	8	10,600		1,558,400 1,504,000 2,381,400 134,300					
reet railway stations and power plants	2	3,300	7	1	ı	6, 124, 900	j		1
eamboat offices and	_	0,000	1 .	í í	l				
whorves	;		] 3		3	1,426,900			1
ientific institutions dephone and telegraph ex-	1	1,100	3	119,300	1	119,800	•••••		l
changes			2		7				!
leaters	i	2,600	15	491,100	1 8	2, 385, 500 490, 600	i	8, 255, 700	)
dertakers			8	51,400	8 1 1	187, 100		0,200,700	1
irkish baths adertakers arehouses	7	81,400	14	396,300	1	998, 600			
iscellaneous re services (District of Co-	8	15, 200	24	991,600	1 9	1,601,100	1	2,093,500	1
umbia)	6		<b></b> .	<b> </b>	<b> </b>	<b> </b>	<b> </b>	<b></b>	l
re services (private)	21	298,300 107,900		<b> </b>			ļ		1
exant during year	59 14	107,900		••••••					
Total	293	1,463,700	1.567	75, 513, 700	1,008	308, 333, 900	91	185, 196, 700	2.1

 Total number of cubic feet consumed
 565, 508, 000

 Total value
 \$230, 926. 22

 A verage payment
 \$78. 09

Note.—While this quantity of water was consumed during the fiscal year, the last quarterly payment goes into the revenue for the next fiscal year.

# TABLE 9.—Miscellaneous work performed during the year.

TABLE 5.— Macentineous work performed during the gent.	
Accounts audited	850, 056
Accounts posted and checked	80, 628
Accounts indexed	7, 899
Accounts indexed Authority cards examined and filed	2, 404
Bills drawn for agents' lists	29, 403
Cards canceled:	•
Meter	241
Flat rate	428
Card records transferred to books.	1,559
Cards retired	5, 706
Changes made on records, ratings, etc	7, 018
Changes in house numbers made on records	831
Changes made on records, ratings, etc. Changes in house numbers made on records. Curb cocks issued.	1, 791
Out off and an made and neconded	11, 710
Delinquent notices made and compared  Examination of service pipes  Files indorsed and returned	32, 114
Examination of service pipes	2, 513
Files indorsed and returned	162
	418
Installation-order cards made	6, 142
Letters and cards received	5, 129
Letters and cards sent out.	17, 729
Meter accounts canceled:	
Private	54
District of Columbia.	157
Meter bills made and checked	68, 255
Meter computations made and checked	278, 298
Meter charges recorded for installation, repair, etc	8, 706
Meters ordered out for various reasons: Private	477
District of Columbia	477 1, 895
District of Columbia.  Meter-repair slips from pump station recorded	2, 027
Meter-repair sirps from pump station recorded.	6, 751
New meter account cards made and checked	11, 957
New meter accounts opened:	11, 501
Private	102
District of Columbia.	6, 346
New schedule accounts opened	1. 624
Notices of leaks to agents, etc.	6, 920
Notices to plumbers for meter tests	184
Permits for use of fire hydrants	292
Plats made	40
Plats made of tap locations	1, 122
Plats made of tap locations.  Plumbers' permits examined, locations.	1, 125
Plumbers' permits for excavations issued	1, 354
Refund applications examined, indorsed, and forwarded	204
Reports checked	9, 200
Reports made weekly	52
Record cards made for agents' lists and compared	29, 403
Records made, agents' numerical list	1,642
Plat-rate bills made and checked	56, 920
Plumbers' permits examined, locations.  Plumbers' permits for excavations issued.  Refund applications examined, indorsed, and forwarded.  Reports checked.  Reports made weekly.  Record cards made for agents' lists and compared.  Records made, agents' numerical list.  Flat-rate bills made and checked.  Special examination slips made and filed.  Special leak examinations recorded.	20,003
Special leak examinations recorded.  Taps issued (corporation cocks) to plumbers.  Tap, service pipe, and curb-cock locations recorded.	50, 054 1, 540
Tan service nine and curh-cock locations recorded	9, 198
Turn or orders made and recorded	5, 223
Turn-on orders made and recorded. Water-main locations and measurements given to plumbers	6, 505
Work orders made	6, 126
11 AUTH ATMORM	٠,

## FIELD WORK-METERS.

FIELD WORK—METERS.	
Meters taken out:	
Private—	
Burst	13
Choked	14
	304
Not registering	
For repairs.	
Leaking	62
Making noise.	3
For test	72
District of Columbia—	
Burst	5
Choked	<b>7</b> 0
Not registering.	1, 506
For repairs	45
Frozen	6
House torn down	13
Leaking	176
Making noise	30
For test, on request.	
Service abandoned	
Meter pits, District of Columbia:	
Describe to condo	833
Brought to grade	
Filled in	719
Lowered	000
New tope installed	18
Relocated	15
Meters, District of Columbia:	
Reversed	1
Reset	35
Out and abandoned.	75
	6, 334
Installed	
Municipal meters installed	12
Miscellaneous inspections	
PIRID WADE	
FIELD WORK-GENERAL.	
	16, 066
Delinquent notices served	16,066 273,298 •
Delinquent notices served.  Meters read.	273, 298 •
Delinquent notices served.  Meters read.	273, 298 •
Delinquent notices served.  Meters read.	273, 298 •
Delinquent notices served.  Meters read.	273, 298 •
Delinquent notices served  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):	273, 298 • 1, 573 979 31, 235
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.	273, 298 • 1, 573 979 31, 235 1, 675
Delinquent notices served  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):	273, 298 • 1, 573 979 31, 235
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.	273, 298 • 1, 573 979 31, 235 1, 675
Delinquent notices served.  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).	273, 298 • 1, 573 979 31, 235 1, 675
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.	273, 298 • 1, 573 979 31, 235 1, 675
Delinquent notices served  Meters read	273, 298 • 1, 573 979 31, 235 1, 675
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks): For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:	273, 298 • 1, 573 979 31, 235 1, 675 186
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks): For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main: Services the use of which have been discontinued during the year.	273, 298 • 1, 573 979 31, 235 1, 675 186
Delinquent notices served  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.	273, 298 • 1, 573 979 31, 235 1, 675 186
Delinquent notices served  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63
Delinquent notices served  Meters read.  New services inspected.  Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off by request.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks):     For services.     Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:     Services the use of which have been discontinued during the year.     Old services of which this office had no record. Cut off at box, leak. Cut off by request. Cut off for vacancy.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks):     For services.     Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:     Services the use of which have been discontinued during the year.     Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off for vacancy. Cut off for nonpayment:	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off for vacancy.  Cut off for nonpayment:  Meters.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353
Delinquent notices served.  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks):     For services.     Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:     Services the use of which have been discontinued during the year.     Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off for vacancy. Cut off for nonpayment:     Meters.     Flat rate.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks):     For services.     Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:     Services the use of which have been discontinued during the year.     Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off for vacancy. Cut off for nonpayment:     Meters.     Flat rate. Cuts repaired.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301 2, 697
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected. Special examinations.  Taps inserted (corporation cocks):     For services.     Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:     Services the use of which have been discontinued during the year.     Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off for vacancy. Cut off for vacancy. Cut off for nonpayment:     Meters.     Flat rate. Cuts repaired. Leaks found on mains.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301 2, 697 83
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off for vacancy.  Cut off for vacancy.  Cut off for vacancy.  Cut off for nonpayment:  Meters.  Flat rate.  Cuts repaired  Leaks found on mains.  Locating taps, service pipes, and curb cocks.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301 2, 697 83 6, 079
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off for vacancy.  Cut off for nonpayment:  Meters.  Flat rate.  Cuts repaired.  Leaks found on mains  Locating taps, service pipes, and curb cocks.  Miscellaneous work in connection with leak examinations.	273, 298 • 1, 573 • 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 301 2, 697 28, 101
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off for vacancy.  Cut off for vacancy.  Cut off for vacancy.  Cut off for nonpayment:  Meters.  Flat rate.  Cuts repaired  Leaks found on mains.  Locating taps, service pipes, and curb cocks.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301 2, 697 83 6, 079
Delinquent notices served Meters read New services inspected Repairs to service pipes, etc., inspected Special examinations. Taps inserted (corporation cocks): For services. Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main: Services the use of which have been discontinued during the year. Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off by request. Cut off for nonpayment: Meters. Flat rate. Cuts repaired. Leaks found on mains. Locating taps, service pipes, and curb cocks. Miscellaneous work in connection with leak examinations. Service pipe, tap, and box locations made with the Grove electric indicator. Special leak examinations:	273, 298 • 1, 573 • 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 301 2, 697 28, 101
Delinquent notices served Meters read New services inspected Repairs to service pipes, etc., inspected Special examinations. Taps inserted (corporation cocks): For services. Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main: Services the use of which have been discontinued during the year. Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off by request. Cut off for nonpayment: Meters. Flat rate. Cuts repaired. Leaks found on mains. Locating taps, service pipes, and curb cocks. Miscellaneous work in connection with leak examinations. Service pipe, tap, and box locations made with the Grove electric indicator. Special leak examinations:	273, 298 • 1, 573 • 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 301 2, 697 28, 101
Delinquent notices served  Meters read.  New services inspected. Repairs to service pipes, etc., inspected.  Special examinations.  Taps inserted (corporation cocks):  For services.  Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main:  Services the use of which have been discontinued during the year.  Old services of which this office had no record.  Cut off at box, leak.  Cut off at main, leak.  Cut off for vacancy.  Cut off for vacancy.  Cut off for nonpayment:  Meters.  Flat rate.  Cuts repaired  Leaks found on mains.  Locating taps, service pipes, and curb cocks.  Miscellaneous work in connection with leak examinations.  Service pipe, tap, and box locations made with the Grove electric indicator.  Special leak examinations:  First inspection.	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 353 301 2, 697 83 6, 079 28, 101 1, 519 27, 535
Delinquent notices served Meters read New services inspected Repairs to service pipes, etc., inspected Special examinations. Taps inserted (corporation cocks): For services. Water department (general).  FIELD WORK AND LEAKS AND WASTES.  Abandoned services disconnected from main: Services the use of which have been discontinued during the year. Old services of which this office had no record. Cut off at box, leak. Cut off at main, leak. Cut off by request. Cut off for nonpayment: Meters. Flat rate. Cuts repaired. Leaks found on mains. Locating taps, service pipes, and curb cocks. Miscellaneous work in connection with leak examinations. Service pipe, tap, and box locations made with the Grove electric indicator. Special leak examinations:	273, 298 • 1, 573 979 31, 235 1, 675 186 149 360 1, 528 63 318 4, 543 351 2, 697 83 6, 079 28, 101 1, 519

# FIELD WORK-SERVICE PIPES, ETC.

Abandoning private service pipes and connecting we Curb-cock boxes repaired, replaced or reset				52 5, 145 166 4 102 60 28
TABLE 10.—General infor	mation.			
Average cost of installing a water meter by the dep Meter Material Labor			2. 23	<b>\$</b> 10.53
Cost of labor and material for maintenance of meter Average cost per meter for maintenance				2, 744. 02 . 26
Consumption of water through meters: District meters District meters in municipal buildings Private meters Private meters in charitable institutions			342 58 565 26	nbic feet. , 584, 600 , 826, 000 , 508, 000 , 716, 500 , 635, 100
Meters in service.	In use June 30, 1914.	Installed. 1915.	Aban- doned 1914.	Total in use June 30, 1915.
District meters. District meters in municipal buildings Private meters. Private meters in charitable institutions	38,621 254 3,126 161	6,828 8 96 15	107 7 84	44,843 255 3,137 178
Total	42, 161	6,448	198	48, 411
Average cost of reading meters.  Average cost of computing and making bills.  Average payment for premises in which meters were ment.  Average cost of delivering bills.  Average payment for premises in which private me Revenue:  For metered water—  District of Columbia meters.  Private meters.	re install	installe \$212,857 245,703	e depart	5. 51 
For flat-rate accounts— Water rents. Building purposes		177, 255 3, 046	0. 53	o, 301. <b>6</b> 9
Total revenues for the fiscal year 1915		••••		3, 861. 89
Water services: In use June 30, 1914		• • • • • • • • • • • • • • • • • • •	1,600	68, 514 - 68, 514
Water services metered	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • •		48,411

# REPORT OF THE SUPERINTENDENT OF SEWERS.

WASHINGTON, D. C., August 28, 1915.

SIR: I have the honor to submit the following report of the sewer division, engineer department, District of Columbia, for the fiscal year ending June 30, 1915:

DIVISION A.—DRAINAGE STUDIES, PLANS, ENGINEERING DATA.

Studies for the future development of the sewerage system, for new trunk lines as

well as important extensions, included during the year the following:

Sanitary drainage and separate system studies included main drainage works for Falls Branch Valley and outlet trunk for same extending from the northern boundary of Dalecarlia Reservoir to the Chain Bridge, there to connect with the projected upper Potomac interceptor, and designed to permanently remove all sewage of the western area, which is now being discharged into the Potomac River above Little Falls; also sanitary sewers and outlet systems for large areas north of Broad Branch bordering Rock Creek Park; also sanitary sewers and outlet system for Woodridge, including substation, and outlet and sanitary sewers for Hillbrook and adjacent sections extending as far as the District line, more than 3,000 acres in area.

Storm drainage studies were developed for new areas in the vicinity of Chevy Chase, Cleveland Park, Brightwood, Takoma, Brookland, Anacostia, Congress Heights, and Bennings. Detail plans were in preparation for the extension of the Piney Branch trunk, Petworth trunk, Sixteenth Street trunk, and Upshur Street trunk sewers. In the Anacostia River Valley, detail study was made for storm water drainage of the entire area between Pennsylvania Avenue and the District line in connection with the

Anacostia River improvements.

Within the old city limits an analysis of the areas and capacity of many of the trunk sewers was made and this data recorded for future reference. Studies were made of surcharged sewers and relief lines designed for same, the most important of these being the Mount Pleasant trunk from Thirteenth and Kenyon Streets NW. to Fourteenth Street Road; Ninth Street NE. trunk, Massachusetts Avenue to Maryland Avenue; and the Pennsylvania Avenue SE. trunk, Twelfth to Fourteenth Streets.

Plans were prepared for main drainage works along the east side of the Anacostia River Valley, including storm-water outlet mains at Burnt Bridge Run, Nailors Run, and Hawes Run and sections of the Michigan Avenue, Arizona Avenue, and Porter Street trunk sewers were planned and these sewers built. Plans were also prepared for the construction of the outlet section of the College Pond trunk sewer from its present terminus north of Canal Road, passing in tunnel under the Chesapeake & Ohio Canal to the Potomac River, which will provide a permanent and satisfactory outlet for this important trunk sewer, so designed and arranged as to connect with the upper Potomac interceptor of the sewage disposal system, greatly improving the sanitary conditions in this locality.

Plans for the sewage disposal system included sections of the lower Anacostia Valley main intercepting sewer from Pennsylvania Avenue along the Baltimore & Ohio Railroad to Hawes Run, thence along the shore of the Anacostia River to Bennings Road, and interceptor connections and regulator chambers along the line of the Anacostia main interceptor between Pennsylvania Avenue and Poplar Point. These connections divert all sewage which formerly emptied into the Anacostia River to

the main outfall sewer of the sewage disposal system.

Plans for the superstructure and equipment for the Poplar Point substation and Woodridge substation were completed. The latter included plans for a 1,500-foot cast iron force main from the substation along Eastern Avenue crossing over the Baltimore & Ohio Railroad bridge to connect with the gravity system draining to the

upper east side interceptor of the sewage disposal system.

Plans and estimates were completed for the upper Potomac interceptor of the sewage disposal system which will extend along the water front of Georgetown and thence parallel the Chesapeake & Ohio Canal to the Chain Bridge. This important interceptor will remove all sewage from the Potomac west of Rock Creek, at present discharging into the river, and will provide permanently for the sanitary drainage of the very large area west of Rock Creek extending northward to Chevy Chase Circle,

where there is a large and rapidly increasing population.

An important part of the year's work involved a preliminary study and outline plans for sewage treatment works for the District of Columbia. This work has been advanced on account of the great importance of securing a suitable site in advance of development in the very limited area within which these works must be located. Several years will be required for the development of the plans for the works, but it is considered essential that a suitable area of sufficient size for future development be

secured without delay.

The engineering data for the year included rainfall, run-off, and river flow observations, frequent bacteriological examinations of streams entering the District of Columbia to ascertain the degree of pollution by sewage from adjacent Maryland towns, sanitary study of river conditions, and determination of dissolved oxygen in river waters.

#### RAINFALL AND RUN-OFF.

Data for run-off studies included rainfall record from 3 automatic recording and 21 ordinary gauges, distributed over 50 square miles of area, as well as discharge and flow-line determinations for excessive storms in a number of the main drainage lines.

The storm of greatest intensity for the year occurred on August 28, 1914, beginning about 8.45 p. m. and lasting about 30 minutes. During this interval, in the northeast section, 11 inches of rain fell in 25 minutes.

The following tabulations give the details of the precipitations for this storm as well as the record for the two other excessive storms of the fiscal year:

Tabulation of the total observed rainfall for the three excessive storms of the fiscal year
1915 as recorded at 24 stations.

Sta-				Date.	
tion No.	Location.	Radial distance.	Aug. 11, 1914.	Aug. 28, 1914.	June 12, 1915.
1 2 3 4 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24	Pennsylvania Avenue and Thirteenth Street NW. Tenth and G Streets NW. Seventeenth and K Streets NW. Twenty-fourth and M Streets NW. Delaware Avenue and C Street NE. New York Avenue and New Jersey Avenue NW. Seventeenth and U Streets NW. North Carolina Avenue and Seventh Street SE. Rock Creek and Massachusetts Avenue NW. First and O Street SE. Dent Place and Thirty-fifth Street NW. Filtration Plant. Maryland Avenue and Thirteenth Street NE. Zoological Park. Park Road and Holmead Place NW. Twenty-first and A Streets NE. Fourteenth and V Streets SE. Twelith and Monroe Streets NE. Fourth Street and Nichols Avenue SE. Wisconsin Avenue and Warren Street NW. Georgia Avenue and Nichols Avenue SE. Minnesota Avenue and Gault Place NE. Conduit and Little Falls Roeds NW. Great Falls, Md.	. 60 1. 20 1. 20 1. 20 1. 40 1. 90 2. 10 2. 20 2. 20 2. 20 2. 40 3. 00 3. 30 3. 30 4. 40 4. 70 5. 10	1. 13 .85 1. 78 1. 03 (1) 1. 10 1. 62 1. 08 1. 25 1. 75 1. 95 (1) 1. 26 1. 18 1. 75 (1) 2. 25 2. 25 1. 26 1.	3. 42 3. 22 3. 22 3. 09 2. 56 2. 56 3. 38 2. 50 3. 38 2. 25 2. 25 2. 25 2. 26 2. 75 1. 35 2. 62 3. 32 1. 41 1. 65	1.25 .88 1.20 1.55 1.20 1.44 1.46 1.00 1.55 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20

<sup>1</sup> No record.

# Excessive storm of Aug. 28, 1914. DEPTH OF PRECIPITATION. [Depth in inches at time indicated.]

Gauge.	8.45	8.50	8.55	9.00	9.05	9.10	9.15	9.20
No. 4, Twenty-fourth and M Streets NW	0		0. 17 0 0	0. 44 . 37 . 37		0. 95 1. 14 1. 23		0.98 1.25 1.47

## RATE OF PRECIPITATION.

#### [Rate in inches per hour during periods of time indicated.]

Gauge.	5 min-	10 min-	15 min-	20 min-	25 min-	30 min-	35 min-
	utes.	utes.	utes.	utes.	utes.	utes.	utes.
No. 4, Twenty-fourth and M Streets NW		1.08	3. 24	3. 48	3.12	2. 43	0
No. 10, First and O Streets SE		0	4. 44	4. 68	4.92	4. 29	3.53
No. 16, Twenty-first and A Streets NE		0	4. 44	4. 62	4.56	3. 60	3.00

# MAXIMUM DEPTH OF PRECIPITATION. [Depth in inches during periods of time indicated.]

Gauge.	5 min-	10 min-	15 min-	20 min-	25 min-	30 min-	35 min-
	utes.	utes.	utes.	utes.	utes.	utes.	utes.
No. 4, Twenty-fourth and M Streets NW	0	0.09	0. 27	0. 58	0.78	0.81	0.81
No. 10, First and O Streets SE		0	. 37	. 77	1.14	1.20	1.25
No. 16, Twenty-first and A Streets NE		0	. 37	. 78	1.23	1.43	1.47

The precipitation, by months, for the fiscal year was recorded as follows:

<b>1914.</b> ·	1915.			
	Inches.	i .	Inches.	
July	2.32	January	6.34	
		February		
		March		
October	1.65	April	90	
		May		
December	4.49	June	6. 58	
		Total	37.85	

#### RIVER FLOW AND SEWAGE DILUTION.

Not less than 12,000,000,000 gallons of untreated sewage was discharged into the Potomac River by the District of Columbia during the past year. Hundreds of tons of removable organic and other matter, possessing a certain economic value, represents part of the burden carried by the river waters under the existing method of sewage disposal. With the increasing population and the growing demand for greater refinement in the disposal of the sanitary waste of cities it is believed not too soon to begin the preparation of plans for sewage treatment works for the removal and utilization of this waste material.

The present condition of the river however, compared with conditions elsewhere, is exceptionally good. The outfall of the sewage disposal system, opposite Grimes on the Potomac, where substantially the entire sewage of the District of Columbia is discharged in mid-channel at the river bottom, was under observation during the year. The conditions in the neighborhood of the outfall continued excellent, while examinations of the river bottom show no evidence of sludge deposits for a distance of 60 miles below the sewage outlets, while the shores and beaches were free from any objectionable condition as to odor, deposits, or otherwise, and the surface of the river substantially free from oily sleek or other objectionable floating matter.

The following is a tabulation of the flow of the Potomac River for each month of the year, together with the average discharge through the outfall. The latter includes considerable storm water, ground water, and stream flow from suburban areas, as well as leaks and wastes of the water-supply system. The actual ratio to river flow is given in this tabulation as well as the ratio of effective dilution obtained.

River flow and sewage dilution.

27	River di	scharge (seco	Average pumpage	Ratio to	Effective	
Month.	Maximum.	Minimum.	Mean.	(second- feet).	river flow.	dilution.
July	4,510 3,425 3,675 3,675	1,350 1,098 804 1,015 804 1,375	3,962 2,349 1,730 1,921 1,901 7,489	95 97 86 96 84 99	1: 43 1:25 1:20 1:20 1:22 1:76	81:1 52:1 87:1 41:1 41:1 161:1
January 1915. February March April May June.	152,500 20,750 7,238	5,662 12,500 4,938 8,900 4,125 4,350	34, 368 33, 853 10, 341 5, 449 7, 350 25, 398	97 85 86 87 88 88	1:354 1:398 1:120 1:63 1:84 1:295	740:1 720:1 223:1 117:1 158:1 547:1

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During the past 12 months the river flow has fallen below 1,000 second-feet on 6 days, below 1,400 second-feet on 29 days, below 1,600 second-feet on 51 days, below 1,800 second-feet on 66 days, below 2,000 second-feet on 78 days, and below 2,200 second-feet on 87 days. The minimum flow was 804 second-feet, on September 10, 1914, and again on November 14, 1914, and the maximum flow was 158,750 second-feet on June 4, 1915. The mean flow for the year was 11,342 second-feet.

The minimum flow for the year was 804 second-feet as compared with 988 second-

feet for the preceding year.

TIDAL RANGE.

The automatic recording tide gauge located at the main sewerage pumping station on the Anacostia River about 1½ miles above its junction with the Potomac River, indicated the following for the fiscal year: Maximum high water, November 23, 1914, +3.6 feet, or 2.9 feet above normal; minimum low water, December 16, 1914, -5.1 feet. or 2.9 feet below normal. The maximum range of tide for each month in the year was as follows:

#### Maximum monthly range of tides.

	Total range, in feet.		Total range, in feet.
July	4.9 4.8	January 1915. February March April May June	5.7 6.6 6.6 5.0

#### SANITARY SURVEY OF THE POTOMAC RIVER.

In connection with the general statement of the condition of the Potomac River, so far as the discharge of sewage therein is concerned, it is proper to record that the sanitary survey of the river undertaken by the United States Public Health Service has been completed and that the report thereon will soon be published. Great importance is attached to the results of this survey, not only in throwing new light on the question of the self-purification of river waters, but particularly as an authoritative analysis of the local conditions in the Potomac such as will indicate future procedure by the District of Columbia in dealing with the problem of sewage purification.

by the District of Columbia in dealing with the problem of sewage purification.

During the year dissolved oxygen tests were made to determine the condition of river waters in the vicinity of the main sewage outfall, as well as similar determinations of samples taken in the upper river for comparison. The following table gives the

maximum, minimum, and mean results of these oxygen tests:

Comparative oxygen tests of samples of Potomac River water taken near sewage outfall and from the upper river for the fiscal year 1915.

			Оху	gen, per cer	nt of sature	stion.	
Month.	Average river flow.	iver Maximum.			num.	Mean.	
	10.	Dilution basin.	Upper basin.	Dilution basin.	Upper basin.	Dilution basin.	Upper basin.
	Second- Feet.						
uly <sup>1</sup>	·	<b> </b>	•••••		• • • • • • • • • • • • • • • • • • • •		
leptember	1.803	77	100	54	77	68	1
October	2.043	80	94	41	73	57	l
lovember	2,061	100	100	70	79	92	1
Decemberanuary 1		88	100	77	100	83	1
ebruary 1							
larch		100	100	98	.99	100	. 1
pril	5,359	100 96	100	74	100	98	. 1
ay		100	100 100	77 80	96 93	85 90	

#### METROPOLITAN SEWERAGE DISTRICT.

In connection with the great problem of providing for the removal of sewage now discharging from adjacent Maryland towns into the small streams entering the District of Columbia that form such an important feature of the park system, work was continued during the year on a sanitary study of these streams, with a view of recording their pollution, as affording important data on which to base future action, if necessary,

by the District of Columbia to secure the correction of this menacing condition.

The pollution of these streams is now very apparent and is steadily increasing. The subject has been a matter of investigation by the Maryland State Department of Health and the Bureau of Sanitary Engineering, and a comprehensive report advising the creation of a sanitary district and providing for measures of relief in cooperation with the District of Columbia was submitted to the State legislature at its session January, 1914, but no legislative action was taken on this report. In view of the legislative action authorizing the Maryland State Department of Health to order the installation of sewerage systems in towns bordering on the District of Columbia, it is considered advisable that legislative authority be obtained from Congress authorizing the Commissioners of the District of Columbia to enter into agreement with the State authorities to secure the abatement of these conditions, which, within a comparatively short period, it is believed will become sufficiently serious to constitute a nuisance.

During the past year several of the border towns have begun the installation of sewerage systems, discharging into the open streams, which will doubtless considerably

augment the present pollution.

The interests of the District of Columbia are so immediate and the conservation of the purity of these streams so important as a measure of protection to the great national

parks through which they flow, that in the interest of public health and sanitation it is necessary that some adequate remedy be applied, such as is suggested in the following extract from my annual report for the fiscal year 1909:

"The only practical solution of this problem is believed to be the formation of a metropolitan district under the control of a State and National board, with the power to construct the necessary valley interceptors for the removal of the sewage, and that these interceptors be arranged so as to discharge at the State line into the interceptors of the sewage disposal system of the District of Columbia, the District to be reimbursed for the cost of pumping and handling the sewage from the Maryland towns and villages by a State-collected tax levied upon the communities benefited, which would also defray the cost of construction and maintenance of the State system.

#### STREAM POLLUTION.

As an indication of the present pollution of these streams the following is a tabulation of the bacteriological determinations from samples collected by this department at or near the District line. The laboratory work was done by the Hygienic Laboratory of the United States Public Health Service, to which acknowledgments are due for this assistance.

Bacteriological survey of streams, showing total bacteria and B.-coli per cubic centimeter in analysis of samples taken from streams as located.

Date.		k at north took Creek	Chevy Cha at Brook	ase Branch rville Road.	Lictle Fall at Wisco nue.	s Branch nsin Ave-	Anacostia River at District line.	
	Total hacteria.1	Bcoli.	Total bacteria,1	Bcoli.	Total bacteris.1	Bcoli.	Total bacteria. <sup>1</sup>	Booli.
1914. July 1 July 8 July 15 July 22	14, 500 5, 000 1, 500	100	13,000 87,000 80,000	1,000 1,000 1,000	13, 000 700, 000 900, 000	100 10,000 10,000	54,000 104,000	100
Aug. 5. Aug. 12. Aug. 19. Aug. 26. Sept. 2. Sept. 9. Sept. 16.	900 1,200 500 14,700 1,500 800 500	19 10 10 100 10 10 10	11,000 202,000 48,000 128,000 81,000 4,500	100 1,000 100 1,000 1,000 100	2, 175, 000 800, 000 2, 720, 000 100, 000 1, 365, 000 250, 000 1, 145, 000	10,000 10,000 100,000 1,000 10,000 10,000	124,000 87,000 28,000 28,000	1,000 1,000 1,000 10,000
Sept. 28 Sept. 30	450 260	10 10	16,000 21,000	10,000 1,000	540, 000 25, 000	100,000 1,000	20,500 24,000	100 100

<sup>&</sup>lt;sup>1</sup> Total bacteria on Agar., 87°.

Bacteriological survey of streams, showing total bacteria and B.-coli per cubic centimeter in analysis of samples taken from streams as located—Continued.

Date.		ak at north lock Creek	Chevy Cha at Brookv	se Branch ille Road.	Little Fall at Wiscon nue.	s Branch nsin Ave-	Anacostia River at District line.	
<b>D 1 1 1 1 1 1 1 1 1 1</b>	Total bacteria.	Bcoli.	Total bacteria.	Bcoli.	Total bacteria.	Bcoli.	Total becteria.	Bcoli.
1915.								
Feb. 12	9,400		58,000	1,000	237,000	10,000		
Peb. 19			4, 150	100	19,000	10	1, 160	ı
Feb. 26	8,000	1,000	1,700	10,000	9,000	1,000		[. <b></b> .
Mar. 5			670	10	59,000	1,000	940	10
har. 12	.100		260	100	36,000	1,000	400	1
Kar. 19	117	10	1,020	1,000	4,100	1,000	315	14
(ar. 26		•••••					1,580	H
pr. 8	400	10	3, 150	10	5, 300	1,000		
Apr. 22	1,000	100	900	1,000	43,000	1,000	900	1,00
Apr. 29	200	100	1,000	10	10,000	1,000		
<b>Gy</b> 13	820 3,000	100	970	. 10	38,000	10,000 1,000	2,800	1,00
day 20 May 27	430	10	6,600 2,780	1,000 100	1,000 118, <b>9</b> 00	10,000		
une 7	300	10	4,900	100	10,300	1,000		
une 14	300	10	12,000	1,000	10,300	1,000	31,000	i
une 22	940	100	8,600	1,000	3,800	1,000	31,000	. ۱

#### DIVISION B .- OPERATION AND MAINTENANCE, SEWERAGE SYSTEM.

The maintenance work of the year included the inspection of the interior of all main sewers, 137.36 miles in length, and the inspection of 1,150 miles of pipe sewers. General repairs were made throughout the system on both main and pipe sewers and their condition as to maintenance was excellent. There was no case of a stoppage of a public sewer during the fiscal year. The more important maintenance work included the repair to plank floor and cleaning of old Tiber sewer, 30 feet in span and 4,000 feet in length; the repairs to invert, concrete work and cement mortar surfacing of 450 linear feet of 22-foot span arch of the northeast boundary sewer; the repair and improvement of the storm water outlet of the Piney Branch trunk sewer; and the construction of 725 linear feet of concrete floor in the B Street storm-water sewer, between Eleventh and Thirteenth Streets NW.

The operating work for the fiscal year included the cleaning of 46,927 storm-water catchment basins, providing for the drainage of permanently paved streets, and the cleaning of 4,274 catchment basins on suburban streets and roads. This was an increase of 5,599 basins over the work of the preceding year. The total quantity of silt removed from the city basins was 5,577.3 tons, and 2,564 cubic yards of material were removed from the suburban basins. The cost of cleaning city basins, including the cost of labor and team haul, but exclusive of disposal, was \$13,354.62, and the cost of cleaning suburban basins was \$2,104.51, a total of \$15,459.13, as against \$14,322.15 for the preceding year. This increase in total cost is due to the larger volume of work for the year. The average cost of cleaning city basins was \$0.285 per basin, against \$0.275 per basin for the preceding year, and the average cost per ton of silt removed was \$2.32, against \$2.10 for the preceding year. The average cost of cleaning suburban basins was \$0.493 per basin, against \$0.496 per basin for the preceding year, and the average cost per cubic yard of material removed was \$0.811 against \$0.86 per cubic yard for the preceding year. All material from city basins was delivered aboard scows, removed from the city front and deposited as fill back of the bulkhead lines of the Anacostia River improvement, between Popular Point and Giesboro Point, under permit from the United States Engineer Office. The cost of this disposal, including loading on scows, water transportation, unloading and grading was \$5,373, and the average cost of this work per ton removed was \$0.75. This represents a net increase in cost on this work over the old method of disposal by fill within the city and otherwise amply justified in the interest of proper sanitation.

Twenty-nine thousand three hundred and ninety-nine cubic feet of material was removed from sewers, and 71,100 cubic feet from the sediment chamber of the sewage disposal system, and 708,388 pounds of screenings were removed by the sewage screens and all of this material incinerated.

The following tabulation indicates the total length of sewers at the close of the fiscal year and gives the length and expenditure for 20 years for operation and main-

tenance, based on the total appropriation for this work, and exclusive of sewage disposal system maintenance. This tabulation indicates a reduction in annual expenditure per mile, for operation and maintenance, in the past 20 years, from \$128 per mile to \$74.03 per mile. The reduction in cost as indicated in this tabulation has been accomplished in conjunction with largely increased and more efficient work and has been due to better organization in this branch of the service.

Year,	Length of sewers (miles).	Expen- diture for mainte- nance.	Cost of mainte- nance per mile.	Year.	Length of sewers (miles).	Expen- diture for mainte- nance.	Cost of mainte- nance per mile.
1896	351, 55 369, 04 382, 78 394, 92 408, 08 421, 34 436, 89 448, 09 456, 87 468, 86	\$45,000 50,000 50,000 50,000 50,000 50,000 50,000 58,000 58,000	\$128.00 135.49 130.62 126.61 122.52 118.67 132.76 129.44 126.95 123.70	1906. 1907. 1908. 1909. 1910. 1911. 1912. 1913. 1914. 1915.	484. 40 501. 44 521. 18 542. 03 567. 98 589. 74 618. 53 644. 28 661. 49 682. 11	\$42,000 38,000 44,500 45,000 48,500 50,000 50,000 50,500 50,500	\$86. 70 75. 78 85. 38 83. 02 86. 39 84. 70 80. 84 77. 61 76. 30 74. 03

There are now 682.11 miles of main and pipe sewers and 5,428 catchment basins. The work of operation and maintenance includes the inspection, flushing, cleaning, and repairing of all of the sewers and appurtenances. The record of cost of all work performed, including the comparative costs with preceding years, together with an accurate daily statement of work performed, is maintained on the card system.

The following summary gives a statement of the amount of work in this division for the fiscal year with details of expenditure for each class of work performed:

#### Cleaning and repairing, fiscal year 1915.

•	Work.	Cost.
CLEANING AND INSPECTION.		
Inspection interior of all main sewersmiles		\$1, 259. 67
Inspection of pipe sewers		3,099.50
Flushing of manholes.	6,077,129 15,473	3,099.30
Flushing of manholes. Flushing of storm-water receiving basins.	15, 242	941.80
Inspection and cleaning of gates, regulators, and sumps	3,618	1, 174. 61 2, 500. 64
Cleaning of pipe sewersdodo	156, 773	
Cleaning of besin outlets	38	8, 433. 75
Cleaning of gravel basins.	3	78.14
CLEANING OF STORM-WATER RECEIVING BASINS.		
City basins	46,927	
Labor		8, 218. 42
Teams.		10, 136. 20
Total		13, 354. 62
County basins.	4 274	
Labor		917.36
Teams		1,787.15
Total		2, 104. 51
Removal by scows:		
Londer		1,725.36
Transportation. Unloader.		1,509.69 2,156.70
	•	
Total,	ļ	5, 391. 75
Total cleaning of storm-water receiving basins.	l	20, 850. 88
Cleaning of sediment chamber		1,560.74
Cleaning of screens Silt removed from main sewers	94 000	4, 725. 69
Material removed from pipe sewers	4, 499	4, 720.09
Silt removed from gravel basins	704	
Silt removed from storm-water receiving basins, citytons.	5,577.3	
Sfit removed from storm-water receiving basins, county	71,100	•••••
Material removed from screens at the main pumping stationpounds	708, 388	

#### Cleaning and repairing, fiscal year 1915,

	Work.	Cost.
REPAIRS.		
telaying pipe sewers and basin connectionsfeet	224	\$796.
bandoning pipe sewers	1,457	76.
pecial large connections to pipe sewers	. 8	80.
epairing main sewers spection and repairs to house connections to main sewers		5,697.
aspection and repairs to house connections to main sewers	49	98.
ettlements filled	6	30
teconstruction of manholes	.7	458
djusting and repairing manholes	68	498
bandoning manholes	21	212
eplacing manhole frameseplacing manhole covers	106	847
spiacing mannois covers	134	100
econstructing basins. djusting and repairing basins.	163	1, 106
bandoning basins.	103	1, 100
eplacing alley grates.	18 h	
eplacing alley frames	15	237
Iscellaneous work		99

DIVISION C.—OPERATION AND MAINTENANCE, SEWAGE-DISPOSAL SYSTEM, PUMPING STATIONS, SHOPS AND YARDS.

The sewage-disposal system was in continuous operation throughout the year handling the sewage of practically the entire district, as well as the storm water from the 900-acre low area, within the dike lines. The various pumping services were maintained without interruption and the preestablished hydraulic levels, both-on the sewage and storm-water services, were not varied.

Main pumping station.—Sewage to the amount of 21,854,000,000 gallons and 296,000,000 gallons of storm water were pumped during the year, all the sewage being discharged through the outfall system to mid-channel in the Potomac River at Grimes.

The following is a tabulation of the quantities pumped during each month of the

vear:

Total pumpage in gallons for each month of fiscal year 1915.

Month.	Sewage.	Storm water.	Month.	Sewage.	Storm water.
July	1, 910, 770, 000 1, 958, 565, 000 1, 746, 350, 000 1, 935, 790, 000 1, 694, 580, 000 1, 986, 300, 000	18, 042, 000 46, 662, 000 5, 132, 000 12, 830, 000 16, 020, 000 34, 917, 000	1915. January. February. March April May. June.	1, 950, 490, 000 1, 713, 640, 000 1, 718, 820, 000 1, 739, 340, 000 1, 768, 490, 000 1, 731, 260, 000	49, 262,000 27, 997,000 8, 321,000 6, 990,000 16, 958,000 52, 728,000

The expenditure of coal and other supplies for the year was as follows: Coal, 10,229,000 pounds; cylinder oil, 1,575 gallons; engine oil, 1,718 gallons; miscellaneous oils, 342 gallons; engine grease, 589 pounds; illuminating oil, 2,218 gallons; gasoline, 12,443 gallons; and cotton waste, 1,914 pounds. One thousand one hundred and eighteen pounds of cotton waste were reclaimed, washed, and reused.

Poplar Point substation.—The Poplar Point substation in the Anacostia River Valley was placed in operation near the close of the year, handling the sewage from separate system sewers in this valley, and work was in progress connecting the storm

sewers to this pumping system.

Woodridge substation.—The Woodridge substation connecting with the upper east side interceptor of the sewage-disposal system, and located at Eastern Avenue and Brentwood Road, was placed in operation near the close of the year, handling the sewage from the area in the vicinity of Woodridge, D. C.

The following are the principal items of betterment for the year:

Poplar Point substation.—Construction and equipment of the Poplar Point substation.

Woodridge substation.—Construction and equipment of the Woodridge substation.

Main pumping station.—A new 50-horsepower, vertical, compound, condensing

engine for 35 kilowatt generating unit was purchased for the dynamo room. One million gallon electrically operated, vertical, centrifugal, emergency pump was erected and placed in operation. A Venturi recording meter was installed on the boiler-feed system. The ventilating system of the main station was improved by the construction of an additional ventilating shaft connecting with the mechanical ventilating system for improving the conditions in the storm water screen chamber,

and additional ventilation was provided for the oil storage room.

Repairs and betterments, main pumping station.—The condenser pump of No. 1 main pumping engine and the duplex steam sump pump were completely overhauled. Electric generating engine No. 2 was repaired. Repairs were made to bearings, valve castings, valve rings, and baffle plates of electric generating engine No. 3 and piston rod replaced. In the boiler room the furnace of boiler No. 1 was relined, new arches placed in boilers No. 3 and No. 4, main flue recovered, economizer repaired, boiler feed to boilers No. 1 and No. 2 overhauled, new pins and track wheels placed on roller flight coal conveyor, and trolley posts and trolley rails on gravity bucket conveyor were renewed. Repairs were made to the roof of the main building, all exterior woodwork was repainted, and railing constructed around sump well and spiral staircase in dynamo room.

Stores.—Supplies, construction materials, and tools purchased during the year were received, inspected, and issued at storerooms and store yards. An accurate daily record is kept on the card system and quarterly reports made covering all expendable and unexpendable property. Annually an inventory of all property is taken in order to verify the accounts and close the records for the year. All unserviceable property, tools, and equipment unfit for further service were delivered to the purchasing officer

for condemnation and sale.

Yard.—At the concrete plant 177 side basin tops, 104 corner basin tops, 448 cheek blocks, 292 drip stones, and 1,623 linear feet of concrete half pipe for sewer construction, were made during the year. Silt from storm water catchment basins was weighed and loaded onto scows at this yard. Minor repairs were made to storehouses, scale

house, and roadways.

Ink sludge from the settling basins constructed for the Bureau of Engraving and Printing was removed by the department and disposed of. The amount of this material removed and the cost of disposal is given in the following tabulation. These settling basins were designed and constructed by the department for the Bureau of Engraving and Printing for the purpose of removing the large quantities of this heavy material prior to the discharge of the bureau drainage into the sewerage system.

The following is a tabulation of material removed and cost of cleaning the ink

settling basins of the Bureau of Engraving and Printing:

Date of cleaning.	Tons removed.	Unit cost removal per ton.	Unit cost team haul per ton.	Unit cost transpor- tation and disposal per ton.	I TOTAL TAR	Total cost removal and disposal.
1914. Dec. 16-18	52.6	\$0.40	\$0,60	\$0.57	\$1.57	\$82, 85
1915.  Jan. 22–23  Feb. 19–20.  Mar. 19.  Apr. 16.  May 14.  June 12.	34. 5 40. 5 32. 8 35. 6 34. 2 38. 0	.36 .29 .28 .29 .30	.70 .84 .80 .73 .76	.58 .50 .55 .58 .58	1. 64 1. 63 1. 63 1. 60 1. 64 1. 64	56, 26 60, 34 53, 46 57, 09 55, 82 62, 21
Total and average	268. 2	. 31	.74	. 56	1. 62	434.08

These basins were put into service November 8, 1914. This cost of cleaning was paid from appropriation for materials and miscellaneous expenses, Bureau of Engraving

and Printing, 1915.

Floating equipment.—During the year the floating equipment was employed in conveying materials removed from the sediment chamber, from the storm-water-catchment basins throughout the city, and ashes from the pumping station to the point of disposal, in conveying construction materials to points along the water front where sewer work was in progress, in transportation in connection with the sanitary survey of the Potomac River, on dredging in front of sewer outlets, in front of seweragepumping station and sewer department yard, and in the transportation of inspectors



and assistant engineers. The towboat Virginia was docked, cleaned, and painted, a new propeller installed, new brass bit caps fitted, and the stem repaired and painted. Minor repairs were made to the launch. On the steam derrick dredge new cable and sheaves were installed, the deck calked, and a new spud fitted. One new scow was constructed during the year, five scows overhauled, and four repaired.

Shops.—In addition to work in connection with construction and repairs enumerated Shops.—In addition to work in connection with construction and repairs enumerated in preceding paragraphs of this division, work of the shops included all repairs to pumping and other machinery, cleaning wagons, motor trucks, and construction equipment, minor repairs for maintenance and betterment of buildings, and maintenance of electric lighting and power circuits. Twenty-one wagons, 3 flushing carts, and 1 hose reel were thoroughly overhauled and painted. Brakes were fitted to the 16 new tank wagons, and the 48 tanks for wagons were cleaned and painted. Small tools were made, as follows: 97 chisels, 53 drills, 12 hose bridges, 32 pipe sewer and digging forms, 30 signs, 18 wheelbarrows, 8 basin scoops, 15 manhole lifters, 18 wedges, and 140 miscellaneous tools. Small tools were repaired, as follows: 1,447 chisels, 1,519 drills, 88 saws, 24 axes, 56 sections hose, 21 wrenches, 6 root cutters, 6 basin scoops, 873 bush hammer blades, 4.496 picks, 10 wheelbarrows, 47 mattocks 6 basin scoops, 873 bush hammer blades, 4,496 picks, 10 wheelbarrows, 47 mattocks, and 283 miscellaneous tools. Three thousand manhole irons were made for construction work. Forms were made for 22 construction and repair jobs. done in the shops in connection with 15 other sewer-construction jobs. One new dirt cart was constructed.

Miscellaneous construction.—Three tide gates were built for Stickfoot Branch outlet connecting with the new Poplar Point storm-water sewer. In connection with the construction of the new ink-settling basins for the Bureau of Engraving and Printing, the work of this division included the making of forms, iron gates, iron buckets, and traveling trucks, as well as electric loading derrick.

Necessary form work was done in connection with the boundary sewer outlet. Special screens and gratings were made for the United States Insane Asylum settling basins. An enclosing wall and fence were constructed along the outfall sewer and around the grounds of the Poplar Point substation.

Miscellaneous work.—Embankments were repaired and grading done along the

main outfall sewer and the Poplar Point storm-water sewer.

### DIVISION D.—CONSTRUCTION, SEWERAGE SYSTEM.

The following is a statement of the length of sewers constructed during the year and the cost of same aggregated for the several construction districts:

Section.	Length.	Cost.
1. County west of Rock Creek. 2. County east of Rock Creek. 3. County west of Anacostia River. 4. County east of Anacostia River. 5. Washington city.	Feet. 32, 089. 68 26, 315. 54 22, 857. 18 6, 764. 95 15, 348. 81	\$70, 845. 26 64, 971. 07 35, 176. 74 11, 952. 54 52, 097. 80

The following is a detailed statement of sewers constructed in the various districts: Western district, county west of Rock Creek.—In this area 9,035.45 linear feet of trunk sewers, 2,678.17 linear feet of service mains, and 20,326.03 linear feet of service sewers, a total of 32,039.68 linear feet, were constructed as follows: Foxhall Heights, 1,450 linear feet of service sewers; Potomac Heights, 1,920 linear feet of service sewers; University Heights, 2,726.03 linear feet of service sewers; Tennallytown, 3,889.40 linear feet of service sewers; Chevy Chase, 1,721.45 linear feet of service sewers; Cleveland Park, 1,764.20 linear feet of trunk sewers and 414.90 linear feet of service sewers, a total of 2,179.10 linear feet; Woodley Park, 308.85 linear feet of service sewers; Massachusetts Avenue Heights, 499.58 linear feet of trunk sewers; Georgetown, 2,444.20 linear feet of trunk sewers; Arizona, 967 linear feet of trunk sewers, 2,700.40 linear feet of service sewers, a total of 3,667.40 linear feet; Pinehurst, 3,360.50 linear feet of trunk sewers, 2,678.17 linear feet of service mains, and 6,923 linear feet of service sewers, a total of 12,961.67 linear feet.

Contract for the construction of section 9 of the Arizona Avenue trunk sewer in Arizona Avenue between Jewett Street and Massachusetts Avenue was let and con-

struction begun during the year.

Central district, county east of Rock Creek.—In this area 5,370.83 linear feet of trunk sewers, 5,593.26 linear feet of service mains, and 15,341.15 linear feet of service sewers,

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a total of 26,315.54 linear feet, were constructed as follows: Takoma, 2,324.50 linear feet of trunk sewers, 2,010.70 linear feet of service sewers, a total of 4,335.20 linear feet; Brightwood, 862.50 linear feet of service mains and 5,338.85 linear feet of service sewers, a total of 6,201.35 linear feet; Petworth, 2,343.68 linear feet of trunk sewers, 3,784.06 linear feet of service mains and 3,047.10 linear feet of service sewers, a total of 9,174.84 linear feet; Mount Pleasant, 917.70 linear feet of service mains, and 2,529.11 linear feet of service sewers, a total of 3,446.81 linear feet; Washington Heights, 702.65 linear feet of trunk sewers and 2,012.79 linear feet of service sewers, a total of 2,715.44 linear feet; Eckington, 29 linear feet of service mains and 412.90 linear feet of service sewers, a total of 441.90 linear feet. Fifty-four storm-water receiving basins were con-

structed in this section during the year.

\*\*Rastern district, county west of Anacostia River.—In the area between North Capitol Street and Anacostia River 2,238.80 linear feet of service mains and 20,618.38 linear feet of service sewers, a total of 22,857.18 linear feet, were constructed as follows:

\*\*Brookland\*, 4,643.76 linear feet of service sewers; Langdon, 2,238.80 linear feet of service sewers. service mains and 13,951.82 linear feet of service sewers, a total of 16,190.62 linear feet; Eckington, 1,625.80 linear feet of service sewers; Trinidad, 397 linear feet of service sewers. Nine storm-water receiving basins were constructed in this section

during the year.

Eastern district, county east of Anacostia River.—In the area east of the Anacostia River 680 linear feet of trunk sewers, 125 linear feet of service mains, and 5,959.95 linear feet of service sewers, a total of 6,764.95 linear feet were constructed as follows: Anacostia, 680 linear feet of trunk sewers, 125.30 linear feet of service mains, and 2,853.05 linear feet of service sewers, a total of 3,226.35 linear feet; Congress Heights, 1,806.50 linear feet of service sewers; Bennings, 145.50 linear feet of service sewers; Kenilworth, 1,154.60 linear feet of service sewers.

The following special work was done during the year: Tide gate chamber and stone facing were completed at the river ends of the Poplar Point storm-water sewer, the Fillmore Street trunk sewer, the Naylor Road trunk sewer, the Good Hope Run trunk sewer, the Fourteenth Street SE. trunk sewer, the Twelfth Street SE. trunk sewer,

and the Commodore Barney Circle trunk sewer, outlets.

The tide gate chamber and connection between the Stickfoot Branch by-pass, under

the outfall sewer, and the Poplar Point storm-water outlet were constructed.

The following interceptor connections were made to the Anacostia main intercepting sewer: Chicago Street trunk sewer, W Street trunk sewer, Anacostia trunk sewer, and Fillmore Street trunk sewer.

A settling basin and sewage screen chamber were built on the main sewer of the United States Government Hospital for the Insane, in order to prevent the discharge of objectionable material, through the outfall to which this main sewer directly con-

nects, into the Potomac River.

Contracts were let and work started on the construction of the trunk-sewer outlets at Burnt Bridge Run, Nailors Run, and Hawes Run, between the established bulkhead line of the Anacostia River improvement, east side Anacostia River, and the Baltimore & Ohio Railroad. This work was necessary in advance of the filling of the Anacostia Flats by the United States Engineer Office.

Work was started on the construction of service sewers for Hillbrook subdivision. The Woodridge substation, located at Eastern Avenue and Brentwood Road, including 1,500 linear feet of cast iron force main and 9,354.7 linear feet of service sewers, This pumping station is required to elevate the sewage from a large was completed. area, between South Dakota Avenue and the District line, northward from the Baltimore & Ohio Railroad, about 40 feet, so as to discharge by gravity into the east side interceptor of the disposal system.

The coping and facade walls of the northeast boundary sewer outlet channel were

completed during the year.

Washington City district.—In this section 1,816.50 linear feet of trunk sewers, 7,607.45 linear feet of service mains, and 5,924.86 linear feet of service sewers, a total of 15,348.81 linear feet, were constructed as follows: Northwest section, 93 linear feet of trunk sewers, 5,132.40 linear feet of service mains, and 1,167.08 linear feet of service sewers, a total of 6,392.48 linear feet; northeast section, 1,423.20 linear feet of trunk sewers, 488.40 linear feet of service mains, and 1,888.85 linear feet of service sewers, a total of 3,800.45 linear feet; southeast section, 89.80 linear feet of service mains and 1,540 linear feet of service sewers, a total of 1,630.53 linear feet; southwest section, 300.30 linear feet of trunk sewers, 1,896.85 linear feet of service mains, and 1,328.20 linear feet of service sewers, a total of 3,525.35 linear feet. Seventy storm-water receiving basins were constructed in this section during the year. Fifty-six basins were reconstructed and 10 basins were abandoned.



Seven hundred and twenty-five linear feet of concrete floor was constructed in the B Street storm-water sewer between Eleventh and Thirteenth Streets NW., replacing the old and defective timber floor in this sewer.

The following tabulation shows the construction of the sewerage system, the average cost per mile, the funds appropriated for sewer construction, and the approximate

population for each year for 20 years:

Year.	Population.	Appropria- tions for con- struction.	Miles con- structed.	A verage cost per mile.
886	259,000	\$226, 300, 00	13. 25	\$17,079.2
807	264,000	283,947.96	17.49	16,234.8
808		175,000.00	17.41	10,061.6
809	274,000	158,629.00	10.18	15,582.4
. <b>900.</b>		175,000.00	12.49	14,011.2
901		250,000.00	13. 25	18,867.9
902		230,000.00	12.87	17,871.0
908		170,000.00	16.42	10,353.3
904		172,000.00	8.78	19,590.
905		168, 650.00	11.99	14,065.
<b>906</b>		170,000.00	15.54	10,939.
907		<b>\$33</b> , 000. 00	17.09	19,486.
908		281, 800.00	19.74	14, 275.
909		259, 500.00	18.01	14,408.
910		224, 975.00	25.51	8,815.1
911		219,040.00	23.18	9, 449.
912		<b>320</b> , 000. 00	24.68	12,965.
913		320,000.00	23.52	13,606.
914		345,000.00	17. 21	20,046.
915	359,000	382, 500.00	20.54	18,622.

#### BEWAGE-DISPOSAL SYSTEM.

Rock Creek main intercepting sewer.—The construction of the fourth section of this interceptor was completed, consisting of placing the greater portion of the masonry lining in the 2,000-foot tunnel as well as 500 feet of open cut, reaching into Coleman Park.

The construction of the fifth section of this interceptor was completed, consisting of excavating the remaining 437 linear feet of tunnel No. 2, placing of 937 linear feet of tunnel lining, and the completion of 212 linear feet of sewer constructed in open cut.

Section No. 6 was placed under contract and entirely completed. This section embraced the construction of 3,417 linear feet of open-cut work, tunnel No. 3, 645 linear feet in length, and the placing of 36 linear feet of 54-inch diameter cast-iron pipe under Broad Branch.

Section No. 7, for the Rock Creek crossing just north of Bowlder Bridge, was placed

under contract.

Anacostia main intercepting sewer.—The contract for section 4 of the Anacostia main interceptor, extending between Young Street and Hawes Run, was let during the year.

Poplar Point substation was practically completed and was in operation at the close

of the year.

Interceptor connections were made along the Anacostia main interceptor between Poplar Point and the Pennsylvania Avenue Bridge, so that all sewage from Anacostia which formerly emptied into the Anacostia River will be intercepted and after settling, screening, and skimming, discharge through the substation to the main outfall of the sewage-disposal system.

Length of main sewers and pipe sewers and number of storm-water basins constructed during the fiscal year ending June 30, 1915.

Appropriation.	Main sewers.	Pipe sewers.	Storm- water basins.
Main and pipe sewers. Suburban sewers. Assessment and permit.	Linear feet. 1,609.10 13,066.81	Linear feet. 6, 153. 20 13, 276. 23 64, 395. 97	111
Assessment and permit  Sewage-disposal system  Miscellaneous trust-fund deposits  Miscellaneous appropriations	5, 114. 71 114. 40 93. 00	3,377.25 1,240.20	1 <b>3</b> 8
Total	. 19,998.02	88, 442. 85	133
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# RECAPITULATION.

Total length of sewers on June 30, 1915:  Main sewers.	miles	137, 16
Pipe sewers.	do	137. 16 544. 75
Total		
Cost of sewerage system, June 30, 1915. Cost of sewage-disposal system, June 30, 1915.	••••••	\$13, 034, 101. 62 4, 624, 186. 31
Total		17 658 987 98

#### DIVISION E.-MAPS, RECORDS, AND DRAFTING.

The most important map and record work of the year was the organization of the work of constructing detail sectional maps showing all underground conduits, gas and water mains, sewers, vaults, building projections, as well as building lines, curbs, and street-railway tracks. These maps are on the large scale of 10 feet to the inch, on sheets 22 by 30 inches, with all structures accurately drawn to scale and the various constructions shown in color. All map work is from actual detail field measurements. The field data is recorded in loose-leaf cross-section books, the sheets being permanently filed under detail card index system for reference. During the year 12 sectional maps were fully completed.

Detailed drainage studies have been prepared for 499 engineer department files and 164 plats prepared for extension of main and pipe sewers, for replacing defective sewers, and for receiving basins. Twenty-four files from the health office have required field work to determine availability of various public sewers for house connections; also 45 files have been forwarded showing assessment on account of connections from parcel

property to public sewers, for which 43 plats were prepared.

Forty-nine record maps of sewers have been made, greatly extending the territory formerly covered by this method of recording sewer construction; two old and badly worn record maps have been replaced by new ones; likewise the work of making minor repairs to maps still good for use has been credibly looked after; also the work of post-

The 100 fact coals working maps for the counter tracings and out of use name for the subjury and out of use maps.

The 100-foot scale working maps for the suburban districts have been kept posted to date with current construction, new subdivisions, and newly established surface grades. In addition, this set of maps has been extended over a larger area of the suburban districts by the completion of 28 new maps.

Three hundred and twenty slips showing assessment to be pending for future sewer construction have been made and 171 files with plats showing the construction of service sewers abutting assessable property have been forwarded to the assessor.

Forty-five letters have been forwarded to the health officer, with plats, as notice of

newly constructed service sewers where same abutted existing houses.

Progress has been made on the card index of new subdivisions, 604 of same having been so recorded. In connection with this work, it is to be remembered, as mentioned in preceding paragraphs, that these subdivisions are also posted on record maps, drainage study maps, service maps, and topographical maps; also a record is made and notice prepared for the assessor upon the subdivision of parcel property where same

abuts a service sewer, in order that the proper special assessment may be levied.
Seventeen old and badly worn grade sheets have been replaced, and 272 new grade sheets have been made and recorded for work constructed during the year.

In order to keep in touch with the operations of the water department and to work systematically and harmoniously in accord with the developments of that department in its construction of water mains throughout the suburban sections of the District, a map showing all mains, as ordered, has been kept posted to date, throughout the year.

Fifty-two street-paving schedules of the surface division, covering 521 jobs in all, have been given careful consideration, and, where necessary, studies have been prepared prior to ordering work for the construction, reconstruction, or abandoning of

sewers in advance of such street paving.

Fifty-six surface-division maps for the establishment of new street grades have been very carefully studied with reference to the effect of such on the drainage of the District, and, when it was deemed necessary, modifications were suggested, before recording same on our permanent maps of record.

Plans, estimates, proposals, and specifications have been prepared for the construction of sewers under 36 contracts.

Twenty plats and deeds for rights of way have been prepared in connection with the extension of the public sewerage system, and of this number 13 have been acquired. In addition 10 permits have been acquired from the United States Government for access to property under the control of its several branches. All of such have been listed under Table 15, appending this report.

#### DIVISION F .- RECORDS AND ACCOUNTS.

The work of this division consists in the preparation of requisitions and vouchers, records of cost of construction, cost keeping, preparing pay rolls, and material and equipment accounting. It included for the year 918 construction jobs, 8,568 formen's reports, 16,038 card records, 1,597 supply bills, 653 pay rolls, 1,423 requisitions, 230 transfer and refund vouchers, 740 tool orders, 548 engineer department files, 62 letters, and 18,354 miscellaneous reports. The following abstract financial statement for the various sewer appropriations and other sewer funds gives a résumé of the expenditures. The total expenditure on account of sewers for the year amounted to \$692,458.69.

Sewerage system.

Cleaning and renairing sewers and basins:

Appropriation		\$68, 000.00
Expended—		<b>\$00,000.00</b>
Mechanics, laborers, and watchmen	<b>\$</b> 39, 836. 77	
Drivers and gate tenders	9, 130. 58	
Inspectors and other per diem employees	2, 999. 21	
Construction material and tools	6, 479. 94	
Repairs to equipment, equipment and supplies	5, 236. 55	
Paid surface division for repaying work	371. 53	
Paid engineer department stables for forage, black-		
smith work, etc	3, 621, 16	
smith work, etc	140. 34	
Paid disbursing office for salaries	<b>52. 00</b>	
•		<b>67, 868. 0</b> 8
Unexpended balance	••••••	131. 92
Maintenance and operation, sewerage pumping service:	=	
Appropriation		46, 500.00
Expended—		20, 000.00
Mechanics, laborers, and watchmen	\$18 584 24	
Inspectors and other per diem employees	1, 054. 00	
Coal, oil, waste, and other supplies	20 763 47	
Tools and equipment renewals.	5 935 47	
Paid disbursing office for salaries	52.00	
and disputating office for salatios		<b>46, 369</b> . 18
Unexpended balance	-	130. 82
Onexpended balance		100.05
Main and pipe sewers and receiving basins:		
Appropriation		67, 500.00
Expended—		-
Contract construction	<b>\$</b> 16, 723. 05	
Day-labor construction	25, 729. 27	
Construction material and tools	9, 042. 48	
Inspectors and other per diem employees	2, 214. 67	
Paid surface division for repaying work	2, 105. 94	
Paid engineer department stables for forage, black-		
smith work, etc	1, 037. 73	
Paid purchasing office for salaries, etc	609. 48	
Paid chief clerk's office for salaries	104.00	
Paid office of assistant engineer to commissioner for		
salaries (Capt. Powell's office)	<b>87. 50</b>	
Paid disbursing office for salaries	50.00	
Paid corporation counsel's office for salaries	100. <b>20</b>	
Outstanding contracts and material to complete		
same	9, 600. 00	
•		67, 404. 32
Unexpended balance	- 	95. 68
Chambarrane manacorrestres errestres	=	

Suburban sewers:		
Appropriation	,	\$190,000.00
Expended—		
Contract construction.  Day-labor construction.	<b>\$</b> 56, 650. 20 25, 942. 07	
Construction material and tools.	13, 897. 37	
Inspectors and other per diem employees	4, 545. 37	
Paid surface division for repaying work	685. 93	
Paid engineer department stables for forage, black- smith work, etc	843, 43	
Paid purchasing office for salaries, etc.	1, 000, 54	
Paid chief clerk's office for salaries	410.00	
Paid office of assistant engineer commissioner for	010 75	•
salaries (Capt. Powell's office)	218. 75 92. <b>00</b>	
Paid corporation counsel's office for salaries	166. 00	
Outstanding contracts and material to complete		
same	85, 500. 00	190 051 88
·	•	189, 951. 66
Unexpended balance		48. 34
Assessment and permit work, sewers:	=	
Appropriation		125, 000. 00
Expended—		•
Contract construction	\$22, 079. 12 52 512 29	•
Construction material and tools	20, 618. 38	
Inspectors and other per diem employees	3, 483. 75	
Paid surface division for repaying work	2, 846. 78	
Paid engineer department stables for forage, black-	1 149 09	
smith work, etc	1, 142. 93 961. 09	
Paid chief clerk's office for salaries	303. 00	
Paid office of assistant engineer commissioner for		
salaries (Capt. Powell's office)	227. 00 108. 00	
Paid corporation counsel's office for salaries	61. 10	
Outstanding contracts and material to complete		
same	20, 500. 00	124, 843. 43
		122, 013. 13
Unexpended balance		156. 57
Miscellaneous trust-fund deposits, District of Columbia:	-	
Unexpended balance of deposits from fiscal year 1914.		1, 161. 15
Amount received from various depositors, fiscal year		10 910 <i>8</i> 5
1915	· · · · · · · · · · · · · · · · · · ·	19, 319. 65
Total		20, 480. 80
Expended— Contract construction\$3, 160. 48		
Day labor construction 6, 039. 44		
Construction materials and tools 3, 110. 48		
Paid surface division for repaving work. 692.83	•	
Contingent charges for engineering, su- pervision, wear of tools, etc		
pervision, wear or wors, exc	13, 526. 24	
Inspection, cleaning and repairing—	•	
Cleaning sewers		
Cleaning garage traps. 44. 27 Inspection vaults. 94. 00		
Inspection sewer connections 6.00		
Inspection conduits 14.00		
Minor repairs 4. 00	004 88	
Returned to depositors	224. 77 2, 544. 79	
Carried over to 1916 for completion of work	4, 185. 00	
•	<del> </del>	20, 480, 80
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Sewer construction from miscellaneous appropriati Repayments	ions:		<b>\$12,</b> 137. 65
Expended—			
Sewer construction—	<b>97 007 00</b>		
Day labor construction			
Construction material	3, 420. 18		
Paid surface division for repaying	00.00		
work.	86. 23		
Contingent charges for supervision,	F10 0F		
engineering, wear of tools, etc	51 <b>6. 25</b>	<b>611 000 F0</b>	
Towardian alassian and consider		<b>\$</b> 11, <b>660</b> . <b>52</b>	
Inspection, cleaning and repairing—			
Inspection and repairs to trunk-	150.00		
sewer connections from houses	152. 00		
Inspection and repairs to sewer con-	705 00		
nections from fire hydrants	195. 00		
Special large size connections to	00.00		
Sewers.	90. 00		
Adjusting basins and manholes in			
connection with surface division	00.11		
work	99. 11		
Cleaning Bureau of Engraving and	404 00		
Printing ink basins	434. 03		
Hire of dredge to U.S. Engineer	700.00		
OfficePumping out manhole in Capitol	100. 00		
Pumping out manhole in Capitol			
Grounds	6. 99		
•		1, 077. 13	70 707 45
	•		12, 137. 65
<i>A</i>			
	unaunna auat	440	
Summary of expenditures, se	noerage syst	em.	
			\$87 868 08
Cleaning and repairing, 1915			\$67, 868. 08 46, 369, 18
Cleaning and repairing, 1915			46, 369. 18
Cleaning and repairing, 1915			
Cleaning and repairing, 1915			46, 369. 18 57, 804. 32
Cleaning and repairing, 1915			46, 369. 18 57, 804. 32 18, 467. 21
Cleaning and repairing, 1915			46, 369. 18 57, 804. 32
Cleaning and repairing, 1915			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers: 1914. 1915.  Assessment and permit work: 1914.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers: 1914. 1915.  Assessment and permit work: 1914. 1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers: 1914. 1915.  Assessment and permit work: 1914. 1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.  Suburban sewers, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00
Cleaning and repairing, 1915  Maintenance and operation, 1915  Main and pipe sewers, 1915  Suburban sewers:  1914  1915  Assessment and permit work:  1914  1915  Permit work, 1915  Miscellaneous trust-fund deposits, 1915  Miscellaneous appropriations, 1915  Condemnation, 1915  Outstanding contracts:  Main and pipe, 1915  Suburban sewers, 1915  Assessment and permit work, 1915			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00
Cleaning and repairing, 1915  Maintenance and operation, 1915  Main and pipe sewers, 1915  Suburban sewers:  1914  1915  Assessment and permit work:  1914  1915  Permit work, 1915  Miscellaneous trust-fund deposits, 1915  Miscellaneous appropriations, 1915  Condemnation, 1915  Condemnation, 1915  Outstanding contracts:  Main and pipe, 1915  Suburban sewers, 1915  Assessment and permit work, 1915  Total			46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.  Suburban sewers, 1915.  Assessment and permit work, 1915.  Total.  Total.  The following are payments into the Treasury or	n account o	f assessment	46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88 8 for service
Cleaning and repairing, 1915  Maintenance and operation, 1915  Main and pipe sewers, 1915  Suburban sewers:  1914  1915  Assessment and permit work:  1914  1915  Permit work, 1915  Miscellaneous trust-fund deposits, 1915  Miscellaneous appropriations, 1915  Condemnation, 1915  Condemnation, 1915  Suburban sewers, 1915  Suburban sewers, 1915  Assessment and permit work, 1915  Total  The following are payments into the Treasury or sewers under the appropriations indicated below of	a account of	f assessment	46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88 s for service 115:
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.  Suburban sewers, 1915.  Assessment and permit work, 1915.  Total.  The following are payments into the Treasury or sewers under the appropriations indicated below of Main and pipe sewers.	a account of	f assessment	46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88 s for service 015:
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.  Suburban sewers, 1915.  Assessment and permit work, 1915.  Total.  The following are payments into the Treasury or sewers under the appropriations indicated below of Main and pipe sewers.  Suburban sewers.	a account of	f assessment	46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88 6 for service 215:
Cleaning and repairing, 1915  Maintenance and operation, 1915  Main and pipe sewers, 1915  Suburban sewers:  1914  1915  Assessment and permit work:  1914  1915  Permit work, 1915  Miscellaneous trust-fund deposits, 1915  Miscellaneous appropriations, 1915  Condemnation, 1915  Condemnation, 1915  Suburban sewers, 1915  Suburban sewers, 1915  Assessment and permit work, 1915  Total  The following are payments into the Treasury or sewers under the appropriations indicated below of	a account of	f assessment	46, 369. 18 57, 804. 32 18, 467. 21 104, 451. 66 14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 941. 63 9, 600. 00 85, 500. 00 20, 500. 00 563, 160. 88 6 for service 215:
Cleaning and repairing, 1915  Maintenance and operation, 1915  Main and pipe sewers, 1915  Suburban sewers:  1914  1915  Assessment and permit work:  1914  1915  Permit work, 1915  Miscellaneous trust-fund deposits, 1915  Miscellaneous appropriations, 1915  Condemnation, 1915  Condemnation, 1915  Suburban sewers, 1915  Suburban sewers, 1915  Assessment and permit work, 1915  Total  The following are payments into the Treasury or sewers under the appropriations indicated below of Main and pipe sewers.  Suburban sewers.  Assessment and permit work, sewers.	a account of	f assessment	46, 369. 18 57, 804. 32  18, 467. 21 104, 451. 66  14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 9, 600. 00 85, 500. 00 20, 500. 00  563, 160. 88 s for service 015: . \$37. 49 . 1, 087. 52 . 60, 565. 34
Cleaning and repairing, 1915.  Maintenance and operation, 1915.  Main and pipe sewers, 1915.  Suburban sewers:  1914.  1915.  Assessment and permit work:  1914.  1915.  Permit work, 1915.  Miscellaneous trust-fund deposits, 1915.  Miscellaneous appropriations, 1915.  Condemnation, 1915.  Outstanding contracts:  Main and pipe, 1915.  Suburban sewers, 1915.  Assessment and permit work, 1915.  Total.  The following are payments into the Treasury or sewers under the appropriations indicated below of Main and pipe sewers.  Suburban sewers.	a account of	f assessment	46, 369. 18 57, 804. 32  18, 467. 21 104, 451. 66  14, 949. 54 103, 745. 27 598. 16 20, 228. 18 12, 137. 65 9, 600. 00 85, 500. 00 20, 500. 00  563, 160. 88 s for service 015: . \$37. 49 . 1, 087. 52 . 60, 565. 34

# Sewage-disposal system.

Anacostia main interceptor: Appropriation		<b>ATO 000 00</b>
Appropriation	• • • • • • • • • •	<b>\$</b> 50, 000. 00
Expended— Contract construction	<b>6</b> 0 1 <i>0</i> 0 50	
Day-labor construction.	19 799 59	
Construction material and tools	6, 123. 63	
Inspectors and other per diem employees	266.50	
New equipment, Poplar Point Substation		
Paid engineer department stables for forage, black-	0,002.01	
amith work, etc	157.00	
smith work, etc	328.49	
Paid disbursing office for salaries	40.00	
Paid corporation counsel's office for salaries	32.90	
Outstanding contracts and material to complete same.	22, 800.00	
•		49, 973. 19
Unexpended balance	<b></b>	26.81
Back Charle main intercentant	:	<del></del>
Rock Creek main interceptor: Appropriation		49, 600.00
Expended—	• • • • • • • • • •	20, 000. IN
Contract construction	42, 449, 74	
Day-labor construction.		
Construction material and tools	1,070.28	
Inspectors and other per diem employees	980. 62	
Paid surface division for repaving work	189. 26	
Paid engineer department stables for forage, black-		
emith work, etc	126.11	
Paid purchasing office for salaries	355.07	
Paid corporation counsel's office for salaries	30.55	
Outstanding contracts and material to complete same.	3, 900.00	
-		49, 504. 37
Unexpended balance	-	95.63
onosponava omanov	•••••	<b>50. 40</b>
Summary of expenditures, sewage-disposal sys	tem.	·
Anacostia main interceptor, 1915.		<b>\$27,</b> 173. 19
Rock Creek main interceptor:		42., 2.0. 20
1914		28, 878, 62
1915		45, 604. 37
Outstanding contracts:		
Anacostia main interceptor, 1915		22, 800.00
Rock Creek main interceptor, 1915	• • • • • • • • • •	3, 900.00
Total, sewage-disposal system	- 	128, 356. 18
• •	=	
Purchase and condemnation of land for rights of way for sewer	ъ:	1,000.00
Expended, cost of rights of way, titles, and recorder fees.	• • • • • • • • • •	941.63
•	-	
Unexpended balance	• • • • • • • •	58.37
TOTAL EXPENDITURES.		
		<b>9</b> 583 180 99
Sewerage system	• • • • • • • • • • • • • • • • • • • •	\$563, 160. 88 128, 356, 18
Sewerage system		\$563, 160. 88 128, 356. 18 941. 63
		\$563, 160. 88 128, 356. 18 941. 63
Sewerage system	· · · · · · · · · · · · · · · · · · ·	128, 356. 18 941. 63

#### ALLOTMENTS.

Statement of expenditures under allotments made to other departments from sewer appropriations, fiscal year 1915.

		Purchasi	ng officer.	Chief	Dis-	Capt.	Cor-	
Appropriation.	Engi- neer stables.	Salaries.	Sand wharf.	engi- neer de- part- ment.	burs-	Pow- ell's office.	tion coun- sel's office.	Total.
Total allotments	<b>\$6,982.58</b>	<b>\$2,367.</b> 15	\$1, 252. 07	\$817.00	\$394.00	\$653. 26	<b>\$390.</b> 75	\$12,736.80
EXPENDED.								
Cleaning and repairing Sewage pumping service	3,621.16	84.05	56, 29		52.00 52.00			3,813.50 52.00
Main and pipe. Suburban sewers.	1,037.73 843.43	855. 07 679. 44	254. 41 321. 10	104.00 410.00	56.00 92.00	87. 50 218. 75	100. 20 166. 00	1,988.91 2,730.7
Assessment and permit work.	1.142.98	378.00	583.09	308.00	108.00	227.00	61. 10	2,808.1
Anacostia main interceptor Rock Creek main interceptor.	157. 00 126. 11	328. 49 355. 07			40.00		32.90 30.55	588.8 511.7
Total expenditures	6, 928. 36	2, 180. 12	1, 214. 89	817.00	394.00	533. 25	<b>\$90.75</b>	12,458.7
Contingent expenses: Total allotment Expenditures, static	onery, p	0,	ind supp	lies	•••••	• • • • • •		1, 120. 4 1, 120. 4
Statement of expenditure ground construction, p several corporations for	ublic-seri	vice corpo	rations,	ion, and and the	amoun	t on ac ts charg	count ged to e	of under ack of th
Expenditures: Supervision								\$683. 45
Inspection								995.6
Record	• • • • • • •		• • • • • • •	· · · · · ·	• • • • • •	• • • • • • •	• • • • •	274. 2
Total	•••••			• • • • • •	• • • • • •			1, 953. 2
Charged as follows:	•						_	224.00
Potomac Electric P Chesapeake & Poto								<b>864.</b> 8 <b>294</b> . 7
Washington Gas Lig	cht Co	- 						581. 7
Georgetown Gas Lig	ht Co				• • • • • •	<b></b> -		189. 5
Western Union Tele Washington Railwa	egraph C v & Elec	o	· • • • • • • •	• • • • • • • •		• • • • • •		5. 2 5. 0
Capital Traction Co		· • • • • • • •		<b>.</b>		<b></b> .		3.00
Postal Telegraph Ca	ble Co.	• • • • • •			•••••	• • • • • •	· · · · · · -	9.0
Total	•••••	• • • • • • •	• • • • • • • •	• • • • • •	•••••	• • • • • •	•••••	1, <b>9</b> 63. 2
Statement of	expendit	ures for p	er diem e	mploye	es, fisca	l year 1	915.	
Cleaning and repairing.							\$	2, <b>296</b> . 14
Main and pipe								4, 259. 8
Suburban sewers Assessment and permit								8, 599. 5 6, 584. 8
Sewerage pumping serv								1, 139.00
Anacostia main intercep	tor	. <b></b> .			• • • • •	• • • • • • •		418.28
Rock Creek main interc	eptor	• • • • • • •			• • • • • •	• • • • • •	• • • •	1, 784. 05
Total				• • • • • •		<b></b> .	2	5, 081. 74

The following is a statement of the unexpended balances of the three principal construction appropriations from 1901 to 1914, inclusive:

Fiscal year.	Main and pipe sewers.	Suburban sewers.	Assess- ment and permit.	Total.	Fiscal year.	Main and pipe sewers.	Suburban sewers.	Assess- ment and permit.	Total.
1901 1902 1908 1908 1904 1905 1906 1907	2,610.75 8,948.39 268.70 5,676.05 7,177.09	\$2, 237. 61 6, 745. 80 5, 762. 88 2, 072. 54 6, 926. 46 4, 798. 30 11, 038. 27 815. 05		\$3, 894. 14 9, 356. 55 9, 711. 27 2, 341. 24 12, 602. 51 11, 975. 39 11, 293. 95 4, 693. 98	1909	\$678. 12 622. 34 499. 36 3, 716. 32 119. 82 83. 43 31, 181. 51	\$570. 80 4, 486. 94 401. 36 791. 12 13. 36 1, 316. 55 47, 977. 04	\$118.16 134.65 252.81	\$1,249,92 5,109,28 890,72 4,507,44 251,34 1,534,63 79,411,36

#### DIVISION G .- Public-Service Corporations, Underground Construction.

The scope of the work for this branch of the sewer department includes a careful study of each application for proposed work for interference with existing and future construction work; inspection of all work in progress to see that same is located according to permit and is properly constructed; final measurements made of all completed work; detailed record sheets made from field notes of inspector and plotted upon office maps; complete card records of each application for permit. The work of the year is summarized as follows:

Permits prepared upon application.  New record sheets made.		1, 112 1, 112
New office maps made.  New record cards made.		7
New gas mains laid miles Electric conduit laid do do	١	11.3
Electric conduit laiddo		34.7

During the last half of the fiscal year this office has been securing field data of all existing underground constructions at 12 street intersections, Thirteenth and G Streets NW. to Seventh and G Streets, inclusive, and Seventh and F Streets NW. to Twelfth and F Streets, inclusive. The detailed records thus obtained were plotted upon loose-leaf cross-section sheets to the number of 1,310.

In connection with the electric conduit 814 manholes were constructed, 77 drains from manholes to sewers were laid, and 953 houses were connected for electric light and power. One thousand eight hundred and sixty-six houses were connected with gas mains. Location and record has been made of 997 electric lamps in streets, served in most cases by lead-covered cables buried along the curbstone.

This division has also inspected, located, and recorded the following work:

#### UNITED STATES GOVERNMENT WORK.

One thousand and twenty-eight linear feet of 6-duct conduit, 99 feet of 1-duct conduit, 8 manholes and 6 sewer connections; also 88 feet of 3 by 2.2 foot concrete conduit for steam pipes and electric duct; also 110 feet of 7 by 6 foot subway under North Capitol Street between existing subway in west sidewalk and the new city post office.

#### PRIVATE CONDUITS.

During the year 12 compressed air outfits have been installed in the sidewalks at various locations, inspected, located, and recorded by this office. One gasoline line has been laid to the curb and two private electrical conduits have been laid across alleys.

#### VAULT INSPECTIONS.

Applications for 30 vaults were acted upon during the year and 39 newly constructed vaults were inspected, located, and recorded. Loose-leaf cross section record sheets were also made of all unrecorded vaults at street intersections previously mentioned.

#### WATER DEPARTMENT CONNECTIONS WITH THE SEWERAGE SYSTEM.

Two hundred and seventy-four permits were issued the water department for sewer connections from fire hydrants, blow-offs, street hydrants, and watering troughs, and

235 connections were inspected and recorded.

For several years considerable study has been given to improving the working efficiency of the department, with the result of adding to the organization a computing division in charge of an assistant engineer. This division, which was organized during the year, will have charge of all special computation and studies of drainage areas and run-off, pumping, and other records of the operating and mechanical plants, analysis of cost keeping, and a comparative study of unit costs both on day labor and contract construction, as well as an analysis of the operating and construction branches of the department, both on a basis of unit and individual efficiencies.

Very respectfully, your obedient servant,

ASA E. PHILLIPS, Superintendent of Sewers.

Capt. R. G. Powell,
Corps of Engineers, United States Army,
Assistant to Engineer Commissioner, District of Columbia.

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	Summary of gas mains laid from July 1, 1906	160

TABLE No. 1.—Sewerage system contract construction, fiscal year ended June 30, 1915.

		Pipe sewer.	ewer.	Main sewer.	ewer.	Allow-	Mate	Materials.	Costs,	ts.			
No.	Location.	Length.	Size.	Length.	Sfze.	ance to contrac- tor.	Charged.	Not charged.	Inspec- tion.	Pave- ment re- pairs,	Totalcost,	Appropriation.	Contractor.
8636	Wisconsin Ave., Jenifer	Feet. 785.00	Inches.	Feet.		29 789 64	\$245.76	25 2508	689 50		\$4 D44 75	3	W F Brankar Co
3	0 mm 8	1,012.20	22	1,408.00	5ft by 5 ft.5m.	9, 981.79		192.84		112,065.81	112,065.81	permit, 1914. Suburban, 1914	
5441	River. Klingle Rd., through right of way, Connection of Ave and Macomb			964.20		4ft. 3 in. 4, 898. 53	1,238.14	7.32	240.75		6,384.74	do	George Hyman.
2545		5,600.90	12		7,343.27	7, 343. 27		599.42 1,937.97	446.34	\$167.75	10, 494.75	Assessment and permit, 1914.	R. B. Wenner.
2246	d. NW., be- St. and New	1,450.00	12		1,586.46	1,586.46	121.04	378.15	78.00	210.05	2,373.70		Ъо.
5547	Cut Rd. Stream Valley between Rock Creek at point 3,000/feet north of Milk- house Ford and Daniel			(1,040.80	2ft. by 2 ft. 6 fn.	2 ft. by 2 4, 331. 26 ft. 6 fn.	617.30	726.32	234.00		5,808.88	Suburban, 1914	W. F. Brenizer Co.
<b>566</b> 3	Bladensburg Rd. NE., between Evarts 8t. and point north of Earle	1,864.30	9			1,648.22	134.15	461.40	86.98		2, 312. 86	Assessment and permit, 1915.	W. F. Cush.
1595	Pl. Maryland Ave. from 7th to 4th 8ts.			1, 270. 20	3 ft. 6 ln.	3 ft. 6 in. 6, 253. 70 1, 487.95	1, 487.96	12.71	<b>26.</b> 00	712.12	8, 780.54	Main and pipe, 1915.	Do.
898	Murdock Mill Rd.; 49th St.; Butterworth Pl.; Brandywine St.; As-	1,288 1,284 264 264 264	120	}	2, 161. 54	2, 161. 54	166.40	526.25	71.50	37.27	2, 962. 96	(Assessment and permit, 1915.	J. W. Bean Contracting Co.
5674	Rock Creek Ford Rd. be- tween Rittenhouse and Stephenson St. east of Rock Creek Ford Rd.	568.10 633.90	120	· · · · · · · · · · · · · · · · · · ·	1,207.40	1, 207. 40	96.51	308.56	40.50	35.70	1,682.67	35.70 * 1,682.67 {Assessment and permit, 1914.	} Do.

183,737.55 of above amount paid during 1914 is included in statement of total cost. \$5,827.75 paid by appropriation for Anacostia River improvement. \$499.81 of this amount paid by Edythe Patten Corbin.

TABLE No. 1.—Sewerage system contract construction, fiscal year ended June 30, 1915—Continued.

		Pfpes	Pipe sewer.	Main sewer.	sewer.	Allow-	Mate	Materials.	Costs.	ts.			
Order No.	Location	Length.	Size,	Length.	Size.	ance to contrac- tor.	Charged.	Not charged.	Inspec- tion.	Pave- ment re- pairs.	Total cost.	Appropriation.	Contractor.
8299	Sigsbee Pl.; 10th Pl.;	Feet. 1, 909. 50	Inches.	Feet.		3,126.94	195.76	829.09	161.00		1 4, 312. 79	Suburban, 1915	George Hyman.
28082	Mingle St. between New Mexico and 46th St.;	2, 295.10	12			2,367.97	190.08	582. 53	115.00		3,264.58	Assessment and permit, 1915.	J. W. Bean Con- tracting Co.
2999	46th St. between Kim- gle St. and Lowell St. 18th St. and New York Ave.	779.80	18		1,708.56	1, 708.56	101.19	482.17	76. 50	178.73	2, 547. 14	Main and pipe, 1915.	Do.
2686	Decatur St. between Arkansas and lows Aves.; Iowa Ave. be- tween Decatur and Emeron Sts.	485.68	<b>ង</b> ដ			1,917.94	129.85	1, 222. 09	96.00	162.73	3, 528. 61	Suburban, 1915 George Hyman.	George Hyman.
2689	Wisconsin A ve. between W. Pi. and 35th St.; Strween Wisconsin A ve. and T St. T St. between 35th and			(1, 031. 40	3 ft. 2 ft. 6 in. by 3 ft.	6, 555.14	1,872.19	21.26	232.50	1,152.37	9, 833. 46	op	(J. W. Bean Contracting Co.
2690	Varnum St. NW., between 7th and 9th Sts.			936.50	3 ft		708.73	9.15	180.17	133.46	4, 737. 44	ор	W. F. Brenizer Co.
268 28	14th St. NW., between Arkansas Ave. and			1,341.58	2ft.3fn. by 3ft.	5,062.18	790.66	36.64	330.65		6, 209. 13	do	George Hyman.
2999	Zoo Park from Adams Mill Rd. bridge to tun-			702.65	2 by 3 ft.	2 by 3 ft. 3, 240.88	663.74	13.60	454.50	Y88.	4, 362. 73	do	W. F. Cush.
7605	Upshur St. between Arkansas Ave. and			1, 407.18	3 ft	4,820.50	1, 100. 42	131.66	244.00	5.25	6,301.83	do	George Hyman.
5702	Crossing A St. NE., at 1st St. over P. B. & W. R. R. tunnel.			92.00	3 ft	774.00	112.13	128.20	117.00	146.33	1, 277. 75	Main and pipe, 1915.	J. W. Bean Contracting Co.
5708	Daniel Rd. to Beach St. to Barnaby St. to Aspen St.	1,861.70	52			3, 039. 91	237.12	810. 43	106.00		4, 192. 45	Suburban, 1915	å
8778	Barnaby St.; Van Hazen St.; Utah Ave.; Ten- nyson St.; Upland Ter- race: 32d and 33d Sts.	2, 110. 36	02	•	6,345.70	6,345.70	554. 47	554.47 1, 665.42	231.00	You	8, 796. 68	8, 796. 68 Agsessment and George Hyman.	George Hyman.

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{Main and Pipe, } W. F. Breniser Co. Sullerban, 1915 Do.	 :		do Do.	dodo	dodo		Main and pipe, Do. 1915.			Assessment and Do. permit, 1915.	Suburban, 1915 George Hyman.	Assessment and Do. permit, 1915.	
3, 529.01 Su	•	:	:				<b>X</b>			<u> </u>	82	*	3, 232. 91 122, 622. 30
Yes.													3, 232.91
112.50								•	•				4, 410.95
566.45													12, 586. 63
112.95													13, 175. 80
2,042.24													89, 216.10 13, 175.80 12, 586.63
													13, 678.01
282 2													
2.38.55 2.38.55 3.4.50					-								35, 723.33
HSt. NW., between 18th and 19th Sts.; 18th St. NW., between H St. and Pennsylvania Ave. Georgia Ave. NW., from	-	ished	Burnt Bridge Run trunk-B. & O. R. R. to established bulk-	Connecticut Ave. south of Porter; Porter be- tween Connecticut	Ave. and 30th St. Outlet to Potomac River	crossing C. & O. Canal in vicinity of College Pond Run.	3d St. between L and New York Ave.	A. St. Detween You and 22d Sts.; alley square 155; Massachusetts Ave between 4th and 5th; 18th St. Detween F and G. Commettert	Ave. between Hillyer and R.	17th St. and N. Capitol St. NE.; Blair Rd. and Concord Ave.; 18th St. and East Capi-	Michigan Ave. between 11th Place and B. & O. R. R. R.	Floral St. and Alaska Ave.; ConnecticutAve. and Wyoming Ave. NW.	Total

1 \$2,629.94 of this amount paid by C. D. Cassidy (Inc.).

Table No. 2.—Sewage-disposal system contract construction, fiscal year ended June 30, 1915.

					Materials.	Sele	Cost of-	Ţ			
Kraot No.	Contractor.	Location.	Character of work.	Payment on contracts.	Charge to con- tractor.	Not charged to con- tractor.	Inspec- tion.	Repairs' to pave- ments.	Repairs Total cost. Com- to pave- ments.	Com- pleted.	Appropriation.
5321	W. F. Brenker Co	Zoological Park on west side of Rock Creek, south of Klingle	× -	\$37, 836. 98 \$3, 060. 47	\$3,060.47	\$22.47	11, 231. 87		\$22.47 \$1,281.871\$42,261.79	Yes	Rock Creek main interceptor.
5510	ор	Ford Road. In right of way and Rock Creek Park between Klingle Ford	Rock Creek main interceptor, sec-	28, 383. 50 1, 318. 67	1,318.67	2	657.64		657.64 330,382.43 Yes	Yes	O
5657	ор	Road and Pierce Mill Road. Rock Creek Park between Pierce Mill and Boulder Bridge.	tion 5. Rock Creek main interceptor, sec-	21,412.94 4,385.09 515.65	4,386.09	515.65	596.93	Yes	26, 909. 61	Yes	ő
5673	6673 Whiting-Turner Con- struction Co.	do	tion 6A. Rock Creek main interceptor, sec-	15,742.71	762.24	184.06	421.96		17, 110.96. Yes	Yes	<b>%</b>
5787	W. F. Brenizer Co	Rock Creek, between tunnel and creek.	tion 6B. Rock Creek main interceptor, sec-								Ď.
5792	do	East side Anacostia River in right of way from Young Street to Twenty-ninth Street SE.	Anacostia main in- terceptor, sec- tion 4.								Anacostia main in- terceptor.
	Total	103, 476. 13 9, 526. 47		103, 476. 13	9, 526. 47	744.80	2, 907. 39		2,907.39 116,664.79		

1 \$29,747.78 of above amount paid during 1914 is included in statement of total cost.

\* \$9,430.57 of above amount paid during 1914 is included in statement of total cost.

TABLE No. 3.—Sever construction under permit system from the appropriation for assessment and permit work for year ending June 30, 1915.

				Cost,	ī,			
Looation.	Longth	Size.	of deposit.	Bize. of To Dis- To de- deposit. trict of positor Columbia. positor	To depositor.	Total cost. returned.	Amount returned.	For whom done.
Eighteenth Street NW., between Kenyon and Kilbourne Streets. Seventeenth Street NW., between Pennsylvania Avenue and II	Fed. 162.20 50.50	Inches. 12 12	\$175.00 75.00	\$144.10 68.73	\$144. 10 68. 73	\$288.20 137.46	830.90 6.27	Geo. Y. Worthington & Bon. John W. Davidge.
reed. Road NW., between Northampton and McKinley Streets. renth Street NW., between Mount Vernon Place and L Street rk Place SE., between Twenty-fifth and Twenty-seventh Street	38.50 100.88 88.89	222	90.08 90.08 90.08	28.57 28.28 23.28 24.85	20°5; 20°5; 20°5;	53. 14 526. 28 146. 96	53.14 73.43 526.28 16.52 146.96 16.52	73. 43 Emma Holder. 16. 52 Wilbur Jarvia.
Total	592. 55		080.00	598.16	552.88	1, 151.04	127.12	

Table No. 2.—Sewage-disposal system contract construction, fiscal year ended June 30, 1915.

					Materials.	tals.	Cost of—	Ť			
No.	Contractor.	Location.	Character of work.	Payment on contracts.	Charge to con- tractor.	Not charged to con- tractor.	Inspec- tion.	Repairs to pave-	Repairs Total cost. Disted. pave-ments.	Completed.	Appropriation.
5321	W. F. Brenizer Co	Zoological Park on west ade of Rock Creek, south of Klingle	Rock Creek main interceptor, sec-	\$37, 936. 98	\$3,060.47	\$22.47	11,231.87		1842, 251. 79	Yes	Rock Creek main \$37,936.98 \$3,060.47 \$22.47 \$1,221.871\$42,251.79 Yes Rock Creek main interceptor, sec.
9210	ор	Ford Road, In right of way and Rock Creek Park between Klingle Ford	tion 4. Rock Creek main interceptor, sec-	28, 383. 50 1, 318. 67	1,318.67	22 62	667.64	:	30,382.43	Yes	Ď.
5657	do	Road and Pierce Mill Road. Rock Creek Park between Plerce Mill and Boulder Bridge.	tion 5. Rock Creek main interceptor, sec-	21,412,94 4,885.09 515.65	4,885.09	515.65	596.98	595.93 Yes	26, 909. 61 Yes	Yes	Ď.
5673	Whiting-Turner Con- struction Co.	ор	Rock Creek main interceptor, sec-	15,742.71	762.34	762.24 184.06	421.95	421.96	17, 110. 96. Yes	Y66	Å
22.0	W. F. Brentzer Co	Rock Creek, between tunnel and creek.	Rock Creek main interceptor, sec-								ë
5792	do	East side Anacostia River in right of way from Young Street to Twenty-ninth Street SE.	Anacostia main in- terceptor, sec- tion 4.	:							Anacostia main in- terceptor.
	Total		103, 476. 13		9,526.47	744.80	2,907.39	<del>`</del>	116, 654. 70		
=	1 \$29,747.78 of above amount	t paid during 1914 is included in statement of total cost.	ement of total cost.	1 \$9,430.	57 of abov	e smoun	paid duri	ng 1914 ta	of beduded in	stateme	\$ \$9,430.57 of above amount paid during 1914 is included in statement of total cost.

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TABLE No. 3.—Sever construction under permit system from the appropriation for assessment and permit work for year ending June 30, 1915.

Coet,	To de- positor.	\$144.10 \$288.20 \$30.90 Geo. Y. Worthington & Son. 68.73 137.46 6.27 John W. Davidge.	26, 57 55, 14 73, 43 Emma Holder. 240, 00 526, 28	552.88 1,151.04 127.12
3	Size. Autount of To District of Geposit. triet of positor Columbia.	.00 <b>\$144.</b> 10 <b>68.</b> 73	100.00 26.57 240.00 285.28 90.00 73.48	680. 00 598. 16
-	Jo deb	12 \$175.00 13 75.00	525 588	١
		Inches. 12 8		592. 55
	Length	Feet. 162.20 50.50	28.50 20.00 100.00	<b>.</b>
	Location.	Eighteenth Street NW., between Kenyon and Kilbourne Streets. Seventeenth Street NW., between Pennsylvana Avenue and H	Dates	Total.
	No.		<b>60 410</b>	

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1915.

Carrollburg Pl. SW., between O and P	_		•			Cost of—	1	
P 819.  101 O St. SE., between Carpenter Pl. and 20th St. 20th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St. 30th St.		Location.	Length.	Size.	Material.	Labor.		
10	100	P Sta			\$26.01	\$85.08		\$111.99
103	101	O St. SE., between Carpenter Pl. and						
24 St. NW., between W and Adams Sts   171.90   12   79.54   236.46   316.02	102	South Capitol St. SW., between M and	1	1	1	Į		
Ramsa Ave. NW., between Buchanan and Allison Sts.   130.62		2d St. NW., between W and Adams Sts South Capitol St. SW., between I and	532.40 171.90				\$83.81	
and Allson Sts.   166,00   10   79,47   157.25   238.55   1068   North Carolina Ave. NE., between		17 Q+a		12	53.88	85. 74		139.62
15th and 14 6ts.   15th and 14 6ts.   15th and 14 6ts.   15th and 14 6ts.   15th and 14 6ts.   15th and 15th and 15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th and 16th 8ts.   15th 8th NW, between Mendals Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between Namburs Pl.   15th 8th NW, between	106A	and Allison Sts				157. 25 619. 66		
Carrollburg Sts		15th and 141 8ts	45.00	12	15.09	46.76	<b> </b>	61.85
Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.   Dee Pis.	107	Carrollburg Sts	28.70	12	12.06	35.00	4.80	51.86
100   Farn St. NW., between 12th and 13th St. St. St. St. St. St. St. St. St. St.	108A	Park Pl. NW., between Otis and Que- bec Pls	237.00	24	316.05	441.20	ll	757.25
100   Farn St. NW., between 12th and 13th St. St. St. St. St. St. St. St. St. St.	108B	Park Pl. NW., between Princeton and						!
100   Farn St. NW., between 12th and 13th St. St. St. St. St. St. St. St. St. St.	108C	Quebec Pl. NW., between Park Pl.	l	1				
111   Champlain St. NW., between Florida Ave. and Kalorama Rd.   391.40   12   175. 22   458. 63   116. 50   750. 35   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118	109	Fern St. NW., between 12th and 13th		1	1			
111   Champlain St. NW., between Florida Ave. and Kalorama Rd.   391.40   12   175. 22   458. 63   116. 50   750. 35   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118   118	110	7th St. NW., between Upshur and Var-	394.00	12	133.84	426.65	62.50	623.08
Ave. and Kalorama Rd	111	num Sts Champlain St. NW., between Florida	112.40	24	138.63	165.65	·····	304.28
and A Rd. 13th and 16th 8ts. 12th NW., between 14th and 16th 8ts. 15th Art NW., between 14th and 16th 8ts. 15th Art NW., between 14th and 16th 8ts. 15th Art NW., between 14th and 16th 8ts. 15th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art NW., between 16th Art		Ave. and Kalorama Rd	391.40	12	175.22	458. 63	116.50	750.35
Sts.   114   Park Pl. NW., between Columbia Rd. and Irving St.   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150		and A Rd	128.80	15	78.47	227.98	20.54	321.99
and Irving St. 132.00 15 109 06 225.49 334.55 South Carolina Ave. SE., between 6th and 7th 8ts. 12 115.02 282.75 45.70 443.47 New Hampshire Ave. NW., crossing U St., U St. crossing 16th St.; New Hampshire Ave., between U and V Sts. 14th St. NE., between Meridian Pl. and Newton St. 14th St. NW., between Meridian Pl. and Newton St. 12th St. NW., between N and O Sts. 77.00 12 29.47 115.88 40.00 185.35 12th St. NW., between 13th and 14th Sts. 15th St. NE., between 12th and 12th Sts. 261.60 12 126.62 330.70 457.32 12th St. NE., between 11th and 12th Sts. 261.60 12 126.62 330.70 457.32 12th St. NE., between Ingraham and Jefferson Sts. 15th St. NE., between Rosedale St. and Gales Pl. NW., between Rosedale St. and Gales Pl. NW., between 15th and 15th Sts. 27.12 12 12 12 12 12 12 12 12 12 12 12 12 1		Q+a ·	436.00	12	196.95	491.54		688.49
116	114	and Irving St	95.10	12	32.36	121.00		153.36
New Hampshire Ave. NW., crossing U St.; U St. crossing 16th St.; New Hampshire Ave., between U and V Sts	115	Colorado Ave. NW., between 14th and 16th Sts	132.00	15	109 06	225. 49		334.55
New Hampshire Ave. NW., crossing U St. U St. Crossing 16th St.; New Hampshire Ave., between U and V Sts. Crossing 16th St.; New Hampshire Ave., between Channing and Douglas Sts.	116	South Carolina Ave. SE., between 6th and 7th Sts		12	115.02	282.75	45.70	448.47
Sts. NE., between Channing and Douglas Sts	117	New Hampshire Ave. NW., crossing U St.; U St. crossing 16th St.; New Hampshire Ave. between U and V		-				
119   14th St. NW., between Meridian Pl.   24.70   12   37.40   79.80   17.26   134.46		Sts	260.00	12	158.33	468, 13	84.14	710.60
120   22d St. NW., between N and O Sts		ning and Douglas Sts	247.02	10	108.75	348.87		457.62
123   Alley of square 456.   265.00   12   192.62   461.10   653.72		and Newton St.			37.40			
123   Alley of square 456.   265.00   12   192.62   461.10   653.72		22d St. NW., between O and N Sts			34.74	57.87		119.66
14th Sts.   260.40   12   162.83   748.53   71.25   962.61     12th St. NE., between I I and I 2th Sts.   261.50   12   126.62   330.70   457.32     12th St. NE., between I I and I 2th Sts.   316.40   10   183.61   388.83   0.30   578.74     127		Alley of square 456	256.00	12	192.62	461.10	<u> </u>	653. 72
126   K S. NE., between 11th and 12th Sts.   214.50   12   114.73   286.43   401.16		14th Sts						
129 Naylor Rd. SE., between R and S Sts.   300, 20   12   121, 74   621, 13   300, 30   12   131, 76   631, 13   315, 15   131   Harvard St. NW., between 15th and 16th Sts.   227, 12   12   79, 43   285, 62   365, 05   132   Naylor Rd. SE., between S and T S ts.   378, 80   10   163, 68   553, 81   717, 49   133   L St. NE., between North Capitol and 1st Sts.   20, 00   10   9, 13   21, 41   30, 54   135   Massachusetts A ve. SE., between 16th   315, 00   12   127, 42   450, 69   578, 11   136   Naylor Rd. Sts.   486, 00   12   205, 25   622, 19   71, 30   896, 74   137   391, 8t. NW., between Legation and Keokuk Sts.   150, 55   10   48, 80   185, 37   19, 54   253, 71   138   Livingston St. NW., between 39th and   150, 55   10   48, 80   185, 37   19, 54   253, 71   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136	125		261.50	12	126.62	330.70		457. <b>32</b>
129 Naylor Rd. SE., between R and S Sts.   300, 20   12   121, 74   621, 13   300, 30   12   131, 76   631, 13   315, 15   131   Harvard St. NW., between 15th and 16th Sts.   227, 12   12   79, 43   285, 62   365, 05   132   Naylor Rd. SE., between S and T S ts.   378, 80   10   163, 68   553, 81   717, 49   133   L St. NE., between North Capitol and 1st Sts.   20, 00   10   9, 13   21, 41   30, 54   135   Massachusetts A ve. SE., between 16th   315, 00   12   127, 42   450, 69   578, 11   136   Naylor Rd. Sts.   486, 00   12   205, 25   622, 19   71, 30   896, 74   137   391, 8t. NW., between Legation and Keokuk Sts.   150, 55   10   48, 80   185, 37   19, 54   253, 71   138   Livingston St. NW., between 39th and   150, 55   10   48, 80   185, 37   19, 54   253, 71   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136		Park Pl. NW., between Columbia Rd.		l				
129 Naylor Rd. SE., between R and S Sts.   300, 20   12   121, 74   621, 13   300, 30   12   131, 76   631, 13   315, 15   131   Harvard St. NW., between 15th and 16th Sts.   227, 12   12   79, 43   285, 62   365, 05   132   Naylor Rd. SE., between S and T S ts.   378, 80   10   163, 68   553, 81   717, 49   133   L St. NE., between North Capitol and 1st Sts.   20, 00   10   9, 13   21, 41   30, 54   135   Massachusetts A ve. SE., between 16th   315, 00   12   127, 42   450, 69   578, 11   136   Naylor Rd. Sts.   486, 00   12   205, 25   622, 19   71, 30   896, 74   137   391, 8t. NW., between Legation and Keokuk Sts.   150, 55   10   48, 80   185, 37   19, 54   253, 71   138   Livingston St. NW., between 39th and   150, 55   10   48, 80   185, 37   19, 54   253, 71   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136   136	128	and irving St. 14th St. NW., between Ingraham and	l	1	1			
131   Harvard St. Nw., between 15th and   227.12   12   79.43   285.62   365.05	129						7.93	
16th Sts.   227.12   12   79.43   285.62   365.65     132   Naylor Rd. SE., between S and T Sts.   378.80   10   163.68   553.81   717.49     133   L St. NE., between North Capitol and lst Sts.   114.60   12   55.53   146.26   201.79     134   Sth St. SE., between C and B Sts.   20.00   10   9.13   21.41   30.64     135   Massachusetts Ave. SE., between 16th and 17th Sts.   315.00   12   127.42   450.69   578.11     136   Dogwood St. NW., between 13th and 14th Sts.   496.00   12   205.25   622.19   71.30   896.74     137   396 St. NW., between Legation and Keokuk Sts.   150.55   10   48.80   185.37   19.54   253.71     138   Livingston St. NW., between 39th and   120.55   10   48.80   185.37   19.54   253.71     138   Livingston St. NW., between 39th and   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   10   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55   120.55		18th St. NE., between Rosedale St. and Gales Pl	241.50	10	108.15	223.36		331.51
134   St. NE., between North Capitol and   114.60   12   55.53   146.26   201.79     134   Sth St. SE., between C and B Sts   20.00   10   9.13   21.41     30.64     135   Massachusetts A ve. SE., between 16th and 17th Bts   315.00   12   127.42   450.69     578.11     136   Dogwood St. NW., between 13th and 14th Sts   486.00   12   205.25   622.19   71.30   898.74     137   39th St. NW., between Legation and Keokuk Sts   150.55   10   48.80   185.37   19.54   253.71     138   Lit Sts   150.55   10   48.80   185.37   19.54   253.71     139   Lit Sts   150.55   10   48.80   185.37   19.54   253.71     130   124   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135   135								
135   Massachusetts Ave. SE., between 16th   and 17th Sts		L St. NE., between North Capitol and	3/8.80	j				
and 17th 8ts		SULP St. SE., Detween Cand Deg	20.00		9.13	21.41		
14th Sts		and 17th 8ts	315.00	12	127.42	450.69		<i>5</i> 78.11
Keokuk Sts	1	14th Sts	486.00	12	205.25	622, 19	71.30	896.74
138   Livingston St. NW., between 39th and   41st Sts		Keokuk Sts	150.55	10	48.80	185.37	19.54	253, 71
130 McKinley St. NW., between Broad Branch Rd. and 33d St		Livingston St. NW., between 39th and 41st Sts	225.55	12	101.20	201.72		392.92
	139	McKinley St. NW., between Broad Branch Rd. and 33d St	282.40	10	110.17	201.03	19.95	421.15

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TABLE No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1915—Continued.

					Cost of—		
Order No.	Location.	Length.	Size.	Material.	Labor.	Repay- ing.	Total cost.
140 141	4th St. SE., between Savannah and Trenton Sts	Lin.ft. 218.00	In. 8	\$37.75	\$190.29		\$228.04
142	bayannan St. Sk., Detween bun and	(1)		62.50	130.90		193.40
143	6th Sts N St. NE., between 1st and North Cap-	19.34	10	16.84	29.16		46.00
144	itol Sts	31.50	12	11.24	26.75		37.99
145	K Sts	81.80	12	33.07	130.08		163.15
146	and 42d Sts	275.60	10	97.02	237.71		334. 73
147	Ave. and Georgia Ave.  11th St. NE., between Maryland Ave. and E. St.; Maryland Ave. NE., between 10th and 11th Sts	130.00	12	62.75	137.48	\$27.16	227.30
148	L St. NW., between 21st and 22d Sts	256.00 21.00	12 12	155.01 10.01	239.56 39.00	44.55 2.25	439.12 51.26
149	Jenifer St. NW., between 41st and Belt Rd.; Belt Rd. NW., between Jenifer						
150	L St. NW., between 21st and 22d Sts.  Jenifer St. NW., between 41st and Belt Rd.; Belt Rd. NW., between Jenifer and Ingomar Sts.  Georgia Ave., NW., between Jefferson	206.80	10	85.20	149.79	4.46	239. 45
151	and Kennedy Sts	349.70	12	142.30	375.39		517.69
152	and Kennedy Sts	374.00	12	179.11	456.99	3.82	639.92
153	Jenifer Sts	366.10	12	144.92	310.72		455.64
154	and 6th St	391.40	10	140.55	279.57	9.00	429.12
155	Raleigh St. SE., between Waclark St. and Esther Pl. Waclark St. SE., between Brothers Pl.	344.76 195.10	10 10	136.37	420.93	9.38	566.68
156	Waclark St. SE., between Brothers Pl. and Raleigh St. 35th St. NW., between Porter and	35.30	. 12	101.40	288. 64		390.04
157	Rodman Sts P St. NW., between 20th and Dupont	364.90	10	149.59	340. 28	2.10	491.97
158	Circle. Olive St. NE., between Quarles and	122.00	12	108.96	199.43	47.76	356, 15
159	Kostern A ved Avtended	360.00 63.00	10 12	161.50 22.72	633.85 66.39		795.35 89.11
160 161	Belmont Pl. NW., west of 16th St Ives Pl. SE., between 15th and 16th Sts. Kentucky Ave. SE., between 14th and	101.00	12	60.08	154.56		214.64
162		115.77	12	68, 77	138.50		207.27
163	Randle Pl. SE., between Alabama Ave. and Savannah St. W St. SE., between 15th and 16th Sts.	322.30 46.50	10 10	120.99 35.67	443.64 74.17	3.78	564.63 113.62
164	W St. SE., between 15th and 16th Sts Flagler Pl. NW., between V and W Sts	(1)		14.30	34.13	6.60	55.03
165	Colorado Ave NW hetween Ingra-	223.00	12	121.20	258, 12	4.22	383.63
166	ham and 14th Sts  Kentucky Ave. SE., between South Carolina Ave and B St	40.00	12	36.93	79.62	6.10	122.65
167	Keniiworth Ave. NE., between Polk	651.00	10	284.87	845.72		1,130.59
168	Coloredo Avo NW between Kennedy	144.41	12	52.91	116.87		169.78
169	and Ingraham Sts.  15th St. NW., between Harvard St. and Columbia Rd.	116.36	10	67.48	205.69		273.17
170		242.30 204.00	10 12	} 217.84	505.74	53.76	777.84
171	and 25th St  25th St. NE., between Girard Pl. and Hamlin St	166.10	10	134.28	179.53		313.81
172	14th St. NW., between Dogwood and	268, 70	12	111.67	262, 72	48.26	422.65
173	Kenflworth Ave. NE., between Quar- les St. and EasternAve	143.60	10	46.80	101.57		148.46
174	Lawrence St. NE., between 14th and	280.90	10	102,34	209.26		401.60
175	Park Pl. NW., between Columbia Rd. and Irving St.	9.50	12	6.12	14.28		20.40
176	20th St. NE., between Girard and Franklin Sts.	193.00	10	68.82	250.86		319.68
177	i Beisir Pi. N.E., Detween Girard and	272.00	10	113.74	231.63		319.08 845.87
178	Hamlin Pls	273.00	10		310.64		450.71
	and 25th St.	· 2/8.00	. 10	. 149.U/	010.04	*	100.71

1 Manhole constructed.

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1915—Continued.

					-		
					Cost of-		Madel
Order No.	Location.	Length.	Sise.	Material.	Labor.	Repay- ing.	Total cost.
179 180	4th St. NE., between T and V Sts 12th St. NE., between Otis and Perry	Lin.ft. 120.00	In. 10	\$40.82	\$125.62		\$1.66.44
181	Sta	50.00	10	16.57	36. 81	<b>\$7.35</b>	60.73
182	Franklin St. NE., between Bladens- burg Rd. and 28th St. 22d St. NE., between Douglas and	573.70	10	200.30	467.06		667.36
183	Evarts Sts.  Douglas St. NE., between 22d and 24th	197.00	10	70.31	314.66	121.87	506.84
184	Sts	180.00	10	77.07	208.05	7.70	202.82
185	Sts. Franklin St. NE., between 14th and	50.00	10	17.96	49.05		67.01
186	15th Sts	95.00	10	31.69	145. 89		177.58
187	Franklin Sts.  Kennedy St. NE., between North Capitol St. and Blair Rd	234.50	12	98.21	252, 84		351.06
188		391.70	10	148.85	465. 84		614.69
189	Montello Aves	200.00	8	38.71	192.10		230.81
190	Irving Sts. U St. NE., between 1st St. and Summit Pl	75.00	10	23.75	64. 23		87.98
		95.00 ∫ 347.00	10 12	49. 22	162.99		212.21
191 192	16th St. SE., between D and C Sts	17.40	21 12	210.77 27.93	649.65 85.09	13, 64	800.43 126.66
193	1st St. NW., between Kennedy St.	193.00	10	66.08	155.96	18.04	222.04
194	1st St. NW., between Kennedy St.	195.00	10	00.06	100.50		222.04
105	8th St. SW., between K and I Sts	444.25	10	161.16	549.97		711.13
195		195.60	12	73.42	200.72		274.14
196	Monroe St. NW., between 18th and 19th Sts.	116.00	12	66.51	154.68	27.54	248.73
197	Iowa Ave. NW., between Gallatin St. and Piney Branch Rd	188.50	12	73.06	135.00		208.06
198	Illinois Ave. NW., between Taylor and Upshur Sts	75.00	12	27.42	83. 75		111.17
199 200	and Upshur Sts	371.50	18	388.52	732.42		1,120.94
201	Erie Sts.  38th St. NW., between Massachusetts Ave. and Woodley Rd	298. 80	10	120.61	817.16		457.77
202	Illinois Ave. NW., between Taylor and	100.00	12	37.24	138. 87		176.11
203	Upehur Sts Florida Ave. NW., between 4th and	50.00	12	18.74	53. 25		71.99
204	5th Sts. Kalorama Rd. NW., between 16th and	101. 75	12	80.66	178.94	29. 92	289.52
205	21st St. NW., between K St. and Penn-	203. 64	12	88.24	240.36	29.92	358.52
206	Adams Mill Rd. NW., between Ken-	126.00	12	86.00	275. 11		361. 11
207	yon and Irving Sts. Irving St. NW., Adams Mill Rd. and 18th St.	449. 10	12	219. 51	443.06		662.57
208	18th St. 16th St. NE., between Hamlin St. and Brentwood Rd.	390.30	12	167. 15	489. 37		656.52
209	Brentwood Rd. Brentwood Rd. NE., between Girard	227.30	10	103.00	270. 50		373. 50
210	and 16th Sts. 16th St. SE., between CSt. and Massa-	266.85	10	107. 52	279. 18		386. 70
211	chusetts Ave	208.60	12	85. 64	280. 36		366.00
212	W St. NW., between Cottrell Pl. and Conduit Rd	192.09 50.00	10	68. 13 10. 46	246. 00 68. 50		314. 13 78.96
213	Upton St. NW., east of Connecticut Ave. Benton St. NW., between Tunlow Rd. and Huidekoper Pl	25.30 280.00	12 15	} 194.31	484.97	ļ	679.28
214 215	7th St. NW., between G and H Sts Franklin St. NE., between 28th and	25. 75	12	16.17	46.07	18.22	80.56
216	20th St. NE. northward from Frank-	45.00	10	24. 19	57. 91		82. 10
217	lin St	180.00 418.70	10 15	81. 71 259. 77	256. 72 492. 92		338. 43 752. 69
218	lin St. V. St., NE., between 2d and 3d Sts. Illinois Ave. NW., between Upshur St. and Grant Circle.	275. 20	1	110.38	218.84		329.22
		2.0.00					

Table No. 4.—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fical year ended June 30, 1915—Continued.

					Cost of-		
Order No.	Location.	Length.	Sise.	Material.	Labor.	Repay- ing.	Total cost.
219	Alley, square 4510	Lin. ft. 145. 50	In. 12	\$53.79	\$125.08		\$178.87
220	Kenyon Sts	177. 50	12	83.28	212.25	<u> </u>	295. 53
221	Kenyon Sts	48.50	10	38. 59	74.25		112.84
222	ternit Sts	177.00	10	71.62	294. 75		366. 37
223	Georgia Ave. NW., between Kenyon and Keefer Sts Park Pl. SE., between 23d and 25th	64.90	10	38.28	<b>59.</b> 73	\$12.34	110. 34
225	Park Pl. SE., between 23d and 25th Sts.; 25th St. between Park Pl. and Q St	350. 80	10	139.90	348.04		487.94
	Central Ave. and between Central Ave. and South Dakota Ave	107.30	10	60.28	159. 23		219. 51
226	Walnut St. between Clinton and Vista; Vista between Walnut and Central	471.50	10	160.58	<b>421.22</b>		581.90
227	Myrtle Ave. NE., between Clinton St. and Central Ave.	(1)		23. 16	88.90		112.00
228	Raleigh St. SE., between Trenton Pl. and Sterling St.	52.30	12	36. 12	68.78		104.90
229	16th St. SE., between East Capitol and A Sts.	80.75	12	49.20	131. 43		180. 61
230	Montello Ave. NE., between Morse and Neal Sts.	146.00	12	52.85	193. 21	1.65	247. 71
232	Alley of square 3621. 5th St. NW., between T and U Sts Florida Ave. NW., between R St. and	192.00 283.60	12 15	77. 54 178. 18	219. 49 373. 36		297. 03 551. 54
234	Decatur Pl	40.00	12 12	29.51	80.00	13. 33	122.8
235	Ave. and Brentwood Rd	250.32 78.60	15	151. 19	471.37		622. 50
236	Pl. and Brandywine St	325. 20	12	131. 73	308. 25		439.98
237	and Chesapeake Sts	267.00	12	92.66	203. 50		296. 10
238	of condemnation	432.00	12	295. 56	451. 70		747.2
239	14th St. SE., between South Carolina Ave. and B St	33. 50 96. 00	12 10	28.65 44.47	66. 99 119. 17		95. 64 163. 64
240 241	Alley, square 132. 16th St. NW., between Colorado Ave.	80.00	10	46.32	122.94	73. 26	242. 50
242	and Kennedy St Lawrence St. NE., between 13th and	142.60	12	78.50	218. 56		297.00
243	14th Sts 42d St. NW., between Fessenden and	328.00	10	120.88	382.28		503. 10
244	Garrison Sts. Montana Ave. NE., between Rhode	307. 15	10	103. 33	234. 50		837.8
245	Island Ave. and Brentwood Rd Upshur St. NW., between 4th St. and	182.80	15	122.86	437. 64		560. 50
246	Illinois Ave. Belt Rd. NW., between Ingomar and	397.50	18	815.20	471.82		787.02
247	Jenifer Sts. 25th St. NE., between Hamlin and	50.00	10	38.66	55. 75		94.4
248	Irving Sts. Dogwood St. NW., between 13th and	193.00	10	87. 68	215. 28	······	302.90
240	Georgia Ave. 13th St. NW., between Emerson and	237.00	10	77.67	266. 80	······	344. 47
250	Farragut Sts	335.60	10	140.88	306.83	25.65	473. 30
251 252	Ave. Alley, square W. 2722. Upshur St. NW., between 7th and	101. 85 398. 00	10 10	58. 62 175. 57	120. 25 398. 35	25.24	204. 11 578. 92
253	New Hampshire Ave	282.70	24	363.96	423.78		787.74
254	Upshur St. and Grant Circle	117. 80	10	41. 67	126.93		168.60
255	Church Rd. and Randolph St 29th St. NW., between Q and R Sts	50.00 53.50	12 12	18.99 19.23	57. 50 46. 99		76. 46 66. 22
256 257	Alley, square 2721. Hunt Pl. NE., between 42d and 44th	390.00 51.40	12 24	158.60	474. 57	(1)	633. 1
258	Sts W St. NW., between North Capitol	21.00	12	115.99	208.74		319. 7
250	and 1st Sts. 2d St. NE., between R St. and Ran-	187.00	12	85. 62	255.24	(9)	340.8
-04	dolph Pl	76.00	10	53.77	139. 13	١	192. 9

<sup>&</sup>lt;sup>1</sup> Stream crossing constructed.

<sup>\*</sup>Repaying charge not yet reported by surface division

Table No. 4—Sewer construction under the assessment system from the appropriation for assessment and permit work for the fiscal year ended June 30, 1915—Continued.

					Cost of-		
Order No.	Location.	Length.	Size.	Material.	Labor.	Repay- ing.	Total cost.
260	12th St. NE., between Kearney and	Lin. ft.	In.				
261	Lawrence Sts Kenyon St. NW., between 18th and	310.00	10	\$122.50	\$386.57	(1)	\$509.07
	19th Sts	120.00	12	46, 35	171.88	/n	218.2
262	14th St. NE., between B and C Sts	60.60	10	42.75	127. 19	8	169.9
264 265	Park Pl. SE., eastward from 25th St W St. NW., between Flagler Pl. and	147.00	10	47.89	181.76	<del>`</del>	229.1
	2d St	54.00	12	41.87	75.31	<b></b>	116.00
266	41st St. NW., between Garrison and Harrison Sts	227.00	10	77.26	249.23	(1)	326.4
267	28th St. NW., between Woodley Rd. and Cathedral Ave	131.10	10	65.69	224.90	(1)	200.5
268	17th St. SE., between T St. and Good	202.10	-~				
	Hope Rd	100.00	10	58.42	180, 86	(1)	230.2
269	8 St. SE., between 14th and 16th Sts	340.00	15	212, 18	425, 49		637.6
270	Illinois Ave., between Shepherd and	f 76.80	18 12	214.43	335, 88		rm e
271	Taylor; crossing Illinois Ave	285.00	12	7 212 20	330.86		550.31
	Upshur Sts	370.30	12	144.88	206.80		351.00
272	7th St. SE., between Orange St. and Alabama Ave	228.00	10	110.47	292, 47	(2)	402.94
273	N St. SW., between South Capitol St.		~		202. 1.	( )	-
	and Carrollburg Pl	39.00	12	14.03	42. 33	(2)	56.36
274	T St. SE., between 14th St. and Min-		į	ı	l		
	nesota Ave		ļ	·····	25. 62	(*)	25.62
	Total	36,766.74		17, 877. 61	44, 988. 29	\$1,415.09	64, 280.90

<sup>&</sup>lt;sup>1</sup> Repairing charge not yet reported by surface division. <sup>2</sup> Work to be completed in 1916.

TABLE No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1915.

Order				D. d.		Cost of-		Total
No.	Location.	Length.	Size.	Basins built.	Material.	Labor.	Repay- ing.	Total cost.
		Feet.	Inch.					
500	12th and B Sts. NW	{ 157.00 20.00	15 12	3	\$176.96	\$336.01	\$112.25	8625, 22
501	7th St. and Maryland Ave. NE.	46.50	(1)	J	120.31	498. 81	180.39	
503	Ontario Rd. between Lanier	20.50	(')		120.31	390.01	180.89	799.01
-	Pl. and 18th St	27.00	12	1	29.43	58.00	17.08	104, 51
504	8th St. NE., crossing Mary-	50.80	24					
	land Ave.; Maryland Ave.	159.20	12	}	168.74	590.49	31.35	790.58
505	between 7th and 8th 8ts 13th St. NW., crossing B St.,	)		<b>'</b>			1 1	
900	north	27.00	15		36, 64	72.37	10.03	119.04
506	1st St. NW., at S St	29.00	10		26.43	54.17	7.94	88.54
507	Northeast corner of 2d and E	20100	1			02.2.		00.41
	8ts	15.00	12	1	20.81	48.93	7.80	77.54
508	Southwest and southeast cor-	00.00					ا ۔۔ ۔۔ ا	
	ners of 7th and E Sts. SE	33.00 ( 151.50	12 18	2	50.04	78.09	11.15	139.28
509	14th St., crossing B St., north.	103.50	12	}	226.08	471.55	58.17	755.80
510	L St. SW., just east of 7th St	44.70	15	,	56.72	147.77	9.63	214.12
511	8th St. and Maryland Ave. NE.	£ 27.00	12	1	154.22	429.15		583.37
	· ·	61.00	(2)	<i>j</i>				
512	Maryland Ave. and G St	<b></b>		(8)	23.07	52.62	[	75.69
513	R St. NW., between Vermont Ave. and 10th St.	158.50	15		170.51	456.86	20.38	647.75
514	Northeast and northwest cor-	136. 30	10		170.01	100.00	20.36	O11. 13
0.1	ners of 5th and Randolph Sts.	72.00	12	2	57.17	83.49	l	140.66
515	17th St., between Mass. Ave.	1	"	_		32.00		
	and P St.; 17th St., between							
	O and P Sts	36.00	1 15	2	40.18	122.49	19.25	181.92

<sup>1 4</sup> feet diameter.

<sup>23</sup> feet diameter.

<sup>&</sup>lt;sup>3</sup> Manhole.

TABLE No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1915—Continued.

						Cost of-		
Order No.	Location.	Length.	Sise.	Basins built.	Material.	Labor.	Repay-	Total cost.
		Feet.	Inch.					
516	V St., east of 4th; U St., west of 4th; northwest corner of Oakdale and 4th Sts	60.00 42.00	12 10	} 2	\$70.77	\$131.40	\$67.98	\$270.15
517 518	Alley, square 181	15.00 11.90	10 12	(1)	24.98 17.83	46. 44 52. 04	25.70 18.81	97. 12 88. 67
519	Northwest corner 14th and Rhode Island Ave.; south- east corner 15th and Rhode	11.00						00.01
	Island Ave	80.00 32.70	12 12	2	48.08	80.10		128. 18
520 521	15th St. NW., crossing B St Southeast corner of Maryland	9.00	24	}	66.55	228.70	22.00	317. 25
522	Ave. and 10th St Northeast corner 11th St. and	21.00	12	1	23.79	52.25		76.04
523	South Carolina Ave. SE 11th and D Sts. SE., northeast	69.00	12	ļ	23.03	55.32	30.20	108.55
594	Georgia Ave., north of New Hampshire Ave.; Rock Creek	67.00	12	•••••	24.46	60.03	14.87	98.86
525	Church Rd., east of Georgia Ave		ļ	2	57.43	85.84		143.27
526	I Sts. NW	8.00	18		1.80	16.00	ļ	17.80
527	Ave. and 9th St. Maryland Ave. NE., between	51.00	12	1	31.56	103.61	·····	135. 17
528 529	13th St. SE., north of I St	51.00 33.00	10 10	1	35.59 29.78	88. 12 49. 53		123. 71 79. 31
530	Northeast corner 15th and Fuller Sts	18.00	12	1	27.47	56.99	4.22	88.68
531	St	30.00	12	1	31.36	61.01	4.95	97.82
532	Irving St	30.00	10	1	32. 24 30. 32	59.37 64.06		91.61 94.38
<b>533</b>	Northeast and southeast cor- ners 7th and Upshur Sts.; southeast corner New Hamp- shire Ave and Upshur St	30.00 33.00	12 10	} 3	82.06	163.49		245.54
534	shire Ave. and Upshur St Southeast corner M St. and Howison Pl. SW	27.00	10	1	42.66	77.27	1.60	121.58
535	E St. NE., between Massa- chusetta Ave. and 2d St.	278.40	12		178.73	489, 34	103.21	771.26
536	Howison Pl. SW., between M and N Sts.	24.00	10	1	31.83	33.75		65. 56
537	Northeast corner Maryland Ave. and 14th St	51.00	12	1	31.41	61.74		93. 18
538	Warner St. NW., West of New	33.00	12	1	30.14	70.13	13.06	113.3
540	Maryland Ave. NE., between 13th and 14th Sts	45.00	12		17.03	49.62		06.68
541	Southeast corner 19th and Bilt- more Sts. NW	42.00	12	1	24.35	60.25	ļ	84.60
542	Maryland Ave., between 13th and Elliott Sts.	24.00	12	1	28.17	51.51		79.66
543 544	G St., between 7th and 8th Sts. SE			(2)	14.63	95.10	14.70	124.43
545	Southwest corner of Columbia Rd. and Park Pl. NW	54.00	12	1	39.65	71.50	7.38	118.5
546	Wisconsin Ave., between K St. and river	158.70	24	<b> </b>	238.08	304.41	3.60	546.00
547	K St. and river		<b></b>	(3)	52.38	165.99		218.37
548	Ave. and K St	6.00	12	1	21.73	85. 56		107.20
		36.00	12	2	53.80	87.63		141.43
549 550	Southeast corner Carrollburg Pl. and O St. SW Northeast corner New Hamp-	21.00	10	1	26.24	54.73		80.97
	shire Ave. and Upshur St.	<u> </u>	<u> </u>	) ,	22.06	43.00	<u> </u>	65.00

<sup>1</sup> Manhole.

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<sup>&</sup>lt;sup>2</sup> Reconnections.

<sup>\*</sup> Façade wall.

Table No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1915—Continued.

						Cost of-		
Order No.	Location.	Length.	Sise.	Basins built.	Material.	Labor.	Repay- ing.	Total cost.
551	9th St. NE., 12 feet north of north curb of I St	Feet.	Inch.					
552	Southeast corner Half and O	12.00	12	1	\$22, 13	\$341.00		\$63.13
553	Sts. SW. Northwest corner Georgia Ave.	30.00	12	1	29.72	41.74		71.46
554	and Dogwood St Northeast corner Dumbarton	24.00	12	1	27.52	98.05	\$2,10	127.67
555	Ave. and 30th St	3.00	12	1	11. 49	41.56	8.19	56.94
507	Sts In line 11th and 12th Sts. and	39.00 21.00	12 24	1	23. 36	36.75		60.11
558	Water St. SW	265.30	12	}	184.58	349.70	(4)	594.28
•	and 7th; southwest corner Maryland Ave. and D St	72.00	12	2	67.12	158.59		995.71
560 561	14th St. and Colorado Ave. N W	21.00	12	(*) Î	29. 26 19. 73	106.00 35.87	18, 12	225, 71 148, 28 55, 60
562	Alley, square 1073 Northwest corner New Jersey							80.68
563	Ave. and Warner St 9th St. north of Varnum St. NW	30.00 42.00	10 12	1	9. 85 32, 62	32, 14 48, 25	8.69	80.87
564	Northeast and southeast cor- ners of 7th and Varnum 8ts.	33.00 27.00	12 10	} 2	55.07	116.25	10.26	181.58
565	NW Northeast and southeast cor-	) <i>2</i> 1.00	10	ľ	Ĭ		1	
	ners of Georgia and Kansas Aves	7.00	10	2	64, 32	126.52	14.70	205, 54
566	12th St. outlet sewer (special construction at outlet)				198.37	479.07	l	672.44
567	14th St. outlet sewer (special construction at outlet)				187. 74	501.80		689.54
568	K St. NE., between North Capitol and 1st Sts	27.00	1	1	36.23	65.76	12.83	114.82
569	Northwest and northeast cor-	27.00	15	١ ،	<b>30.2</b> 0	0.76	12.00	MF.00
	ners Morse and Orren Sts., northwest corner Morse and			_			l l	
571	Staples Sts	81.00	12	8	86.97	140, 82	(3)	237.79
	trunk sewer (special con- struction at outlet)		l	l	83.49	495, 47	ll	578.96
572	Northwest corner U St. and Summit Pl.	24.00	10	1	27.95	48.07		76.02
573 574	Northwest corner 2d and U Sts. North side of Park Rd. 270 feet	27.00	liž	Ĩ	29.47	90.88		120.35
0.1	east of east curb of Georgia Ave.; south side of Park Rd.		1		l		1 1	
	270 feet east of east curb of	94 M	١,,	2	60.91	198.48	4.27	206.66
575	Georgia AveL St. NW., between Vermont Ave. and 14th St	36.00	10	1	1	i	1 1	
577	Northwest corner Dumbarton	222.80	12		150. 54	484.71	71.08	706.33
578	and 30th Sts. NW In front Engine House No. 24.	3.00 6.00	12	1 1	20. 16 14. 77	51.97 36.07	7.56 4.29	79. 69 55. 13
579	Southwest corner 14th and Perry Place	15.00	12	1	42.35	90.67	<u> </u>	133.02
580	Perry Place	45.00 15.00	12 15	} 2	62, 51	127.12	l	189.63
861	of 16th St. N St. NW., between 1st and 3d	J 18.00	15	ľ				
582	Sts Northeast and northwest cor-		·	(2)	12.12	12.18	·····	24, 30
000	ners of 14th and Q Sts.; northeast corner 14th and P.	34.70	12	1	22, 10	158.24	27.25	307.59
583	Southwest corner 15th and K	6.00	12	}	19.16	64.75	24.42	108.33
584	Sts Northwest corner 16th and	36.00	10	,		1	1 1	
	Taylor: northwest corner 16 and Upshur Sts	45.00	12	2	55. 30	109.68		164.98
585	tween our and /un bus	<b> </b>	ļ	(2)	11.85	22.00	5.87	39.73
586	41 St. SW., between M and N Sts	470.40	12	<b> </b>	247.13	671.54	85.21	1,002.88
587	14th St. NW., between Pennsylvania Ave. and F St Northeast boundary outlet	134.00	18	ļ	198.06	519.14	<u> </u>	717.20
588	Northeast boundary outlet (automatic gauge)	1 42.00	12	}	56. 48	208.04		264, 47

<sup>&</sup>lt;sup>1</sup> Repaying charge not yet reported by surface division.

<sup>2</sup> Manhole.

Table No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1915—Continued.

				<u> </u>		Cost of-		
Order No.	Location.	Length.	Sise.	Basins built.	Material.	Labor.	Repay- ing.	Total cost.
589	3d and Seaton Sts., 2d and Seaton Sts	Feet. 21. 70 18. 50	Inch. 15 12	}	\$73.84	\$153.08		\$226, 92
590	Southwest corner 2d and T	30.00	12	}	12.09	24. 25	(1)	36.34
591	Southeast corner 2d and T Sts. NE. (gutter drop aban- doned)				2.46	6, 25	(1)	8.71
592	Northeast corners 16th and Upshur; Varnum and Web-	•••••			2. 10	0.20	()	~
593	ster Sts	102.00	12	8	93, 12	141.01	\$2.10	236. 23
504 506	Water and L Sts. SW	54.00 119.90 66.50	(2)	1	39. 27 396. 60 168. 37	91. 31 454. 34 338. 92	35. 16 5. 46 105. 57	165.74 856.40 612.86
596 596	16th St. NW., between U and	309.00	12		284.90	593. 62	3. 75	882, 27
597	and C. & O. Canal	30.00	10	1	29. 52	72.18		101.70
598 599	Volta Place NW. and in square 1272	122.00	12		74.34	229. 65 177. 07	7. 32	311.31
600	Massachusetts Ave. at W St.	40. 80	24	(9)	97. 94 11. 43	19. 50	76. 37	351. 38 30. 93
601	Park Pl. and Manor St.,	30,00	10	1	31.06	52.19	8.00	91, 25
602	Northwest corner 9th and Barry Pl. NW	21.00	12	1	27. 64	50. 50		78, 14
603	Northeast and southeast cor- ners 9th and Potomac Ave.; M St. crossing 9th St. SE	28. 80	12		49. 48	181. 82	21. 74	253.04
604	Northwest corner 2d and Todd St. NE.	29.00	12	1	27.99	46. 25	7.97	82.21
605	Southwest corner 2d and V	21.00	12	1	27.04	43. 50	1.65	72.19
606	O St. SE., between Half and		ļ	(1)	19. 76	37. 51		57. <b>27</b>
607 608	K St. NW., between 3rd and 4th Sts. 912 15th St. NW.	75. 90 20. 50	18 8		199. 78 4. 57	452.99 31.00	20. 84 7. 56	673. 61
609 610	Alley, square 534	47. 85	8		30. 54	78. 14	18. 40	43. 13 127. 08
611	necting basins)  18th St. NW., between Pa.  Ave. and G St.			2	124. 21	267. 98	77.38	469. 57
612	1 43 Dr D M " Dermeen v shilt	241.00	12	•••••	103.17	363, 49	67. 65 222. 00	534. 81
613	P St., between Rock Creek and 26th St. Northeast corner 26th and P	335. 10 18. 00	12 10	1	190. 55 20. 74	557. 14 41. 25	222.00	969. 69
614	Northeast corner 26th and P Sts.	6.00	10	1	21, 55	50.00		71. 55
615	Sts Northeast corner 27th and P Sts. NW	21.00	10	1	24. 10	48. 50		72.60
616 617	Sts. NW	30.00	10	1	<b>25</b> . 57	71.24	10.00	106.81
618	P St. NW., between 10th and 11th Sts	84.30	10		48.01	103. 50	16. 50	168, 01
619	Sts. NW	21.00	10	<b> </b> -	11.02	44.00	6.88	61. 90
•••	ners Georgia Ave. and Shepherd Street	54.00	10	2	59. 39	106. 81	24. 30	190. 50
620 621	Southeast corner Georgia Ave. and Upshur St. NW H St. and Pennsylvania Ave	6.00 21.00	15 12	1	23. 58 7. 37	51.00 54.00		74. 58 61. 37
622	Pennsylvania Ave. SE., west of Commodore Barney Circle.	48.00	12	2	57. 32	107. 56		164. 88
623	Southeast corner Adams Mill Rd. and Kenyon St 18th and H Sts. and 18th and	39.00	15	1	39. 58	62. 13		101. 71
626 627	Pennsylvania Ave	118.00	12	<b></b>	46. 13	169. 36		215.49
02/	Southeast corner Georgia Ave. and Taylor; northeast cor- ner Taylor and 9th Sts. NW.	78.00	12	2	70.08	108.37	16.03	194.48
628			1 15	}	191.28	507.66	237. 94	936, 88
	Denewing charge not get senorte	d he mele	41	ielon.	. 12hv	2 feet	a Wa	nhole

<sup>&</sup>lt;sup>1</sup> Repaying charge not yet reported by surface division.

2 8 by 8 feet.

Manhole.

Table No. 5.—Sewer construction from the appropriation for main and pipe sewers, fiscal year ended June 30, 1915—Continued.

	Location.					Cost of-		
Order No.		Length.	Sise.	Basins built.	Material.	Labor.	Repay- ing.	Total cost.
400	Wheelds Assa NVV Assaura	Feet.	Inch.					
629	Florida Ave. NW., between 7th and T Sts.		<b></b> .	(1)	\$16.22	\$37.50	\$1.65	\$55. 37
630 631	E St. NW., between 9th and 10th Sts	32.00	12		36.59	72.50	63. 29	172. 38
632	Sts. Northwest corner 27th and I	24.00	12	1	19.71	57. 26		76.97
633	Sts. NW	48.00	12	1	36.03	59.88		95. 91
634	Sts. NW	24.00	10	1	28.49	56, 25		84.74
635	Perk Pl	30.00	12	1	30.46	45.06		75. 52
636	Capitol and 1st Sts	30.00	15	1	38.22	56.30		94, 52
637	Ave. and Corbin Place NE F St. NE., between 2d and 3d	6.00	12	1	21. 63	47. 12		68.75
638	Sts	15.00 15.00	15 10	1	75.12 29 43	174. 75 41. 75	(2)	249. 87 71. 18
639	Northwest corner 11th and W Sts. NW	9.00	12	1	23.08	23.50	(9)	46, 58
	Total	7, 429. 85				19, 220. 95	2, 177. 55	29, 583. 53

<sup>&</sup>lt;sup>1</sup> Manhole.

Table No. 6.—Sewer construction from the appropriation for suburban sewers, fiscal year ended June 30, 1915.

						Cost of-	.	Total cost.
Order No.	Location.	Length.	Size.	Character of work.	Ma- terial.	Labor.	Repay- ing.	
800	Valley of Piney Branch, between 14th St. and Georgia Ave. <sup>1</sup>	Lin. ft. 71.00	In. (2)		\$15.01	\$301.16		\$316. 17
801	Edmunds St. NW., be- tween Massachusetts Ave. and 35th Pl.			Manhole con- structed.	22, 88	41, 17	\$2, 10	66. 15
802	11th St. NW., between Florida Ave. and Clif- ton St.	177. 30	21	••••••	227. 15	448.96	61.56	737. <b>67</b>
803	19th St. NW., between Mintwood Pl. and Biltmore St.	17.00	10	••••••	24.10	57. 32		81. 42
804	11th St. NW., between Florida Ave. and Clif- ton St.	241.10	21		268, 21	343, 36	61. 55	673, 12
805	Klingle Rd. NW., be- tween Macomb St. and Connecticut Ave.		ļ	8 feet 4 foot 3-inch invert.	14.00	127.87		141, 87
806	Poplar Point substation.		<b> </b> -	Façade wall and outlet chamber.	151.36	394. 29		545. 65
807	Bladensburg Rd. NE., between Evarts and Douglas Sts.	265. 50	10		157. 25	364. 19		521. 44
808	Macomb St. trunksewer, section No. 2.		<b> </b>	96 feet 12-inch cop- ing.	21.04	184. 25		155, 29
809	Irving St. NW., between Warder St. and Geor- gia Ave.	81.20	15		65. 48	141. 25		206. 73
810	7th St. NW., between Varnum and Upshur Sts.	238. 70	24		316.44	842.78		659. 22

<sup>&</sup>lt;sup>1</sup> Continuation of 1914 work.

<sup>&</sup>lt;sup>2</sup> To be completed in 1916.

<sup>2 2</sup> by 3 feet.

Table No. 6.—Sewer construction from the appropriation for suburban sewers, fiscal year ended June 30, 1915—Continued.

			}			Cost of-		
Order No.	Location.	Length.	Size.	Character of work.	Ma- terial.	Labor.	Repay- ing.	Total cost.
811	Stickfoot trunk sewer connection to Ana- costia main inter-	Lin. ft. 565. 00	In. 12	Sluice gate	\$266. 45	\$799. 26		\$1,065.71
812	ceptor. Connecting Poplar Point substation to outfall sewer.	<b>32.</b> 00	(1)	Discharge conduit.	130.02	285.80		415, 82
813	Asylum grounds			Settling basin and	172.46	759. 10		931.56
814	Poplar Point outlet at	40.00	(2)	screen well.	127. 53	471.51	<b>]</b>	599.04
815	Stickfoot Branch. Stickfoot Branch by- pass to Poplar Point outlet.	88.00	24	Tide-gate cham- ber.	190.40	699. 73	ļ	890. 13
816	Brentwood Rd. NE., be- tween Eastern Ave. and Chestnut St.	76.00 475.00	6 15	}	365. 79	809.16	ļ	1, 174. 95
817 818	do	134.00 213.30	15 15		210.00 265.00	770.90 849.33		980. 90 1, 114. 33
819	Clinton Sts. Fillmore trunk sewer at		ļ	Special construc-	172, 42	351.71	ļ	<b>524.</b> 13
820	river. Naylor Rd. trunk sew-		ļ	tion. do	157. 46	495. 68		653.14
821	er at bulkhead line. Good Hope Run trunk		<b> </b>	do	150.88	391.52		542.40
823	sewer at bulkhead line. East side by-pass under outfall sewer at Stick-		ļ	do	81.81	209. 87		241.18
824	foot Branch, Rock Creek Park, east of Daniel Rd.	309.00	(4)		198. 43	1, 447. 87	<b> </b>	1, 641. 30
825	north of Rock Creek	120.00	12		70.82	206. 34	\$43.71	820. 87
826 827	Church Rddo East of Park Place in Soldier's Home	3.00	12	Catch basin	20. 84 191. 74	55, 32 534, 88		76. 16 726. 62
828	grounds. Upshur St. at Arkansas			Cross-under drain.	35. 16	55. 50	ļ	90.66
829	Ave. Portal of the northeast			Special construc-	276.02	821.07	ļ	1,097.09
830	boundary sewer. 3d St. NE., between 8	224.60	15	tion.	164.05	442.40		606.45
831	and Seaton Sts. Seaton St. NE., between	363.70	12		158. 83	530. 35		689. 18
832	2d and 3d sts. 16th and Irving Sts. NW.		ļ	Abandoning 4 manholes and catch basin.	1.80	44.00	1.44	47. 24
833	Massachusetts Ave.NW., between Rock Creek and W St.	216.00	24	Caton pasm.	268.72	266. 50	18.00	553. 22
834 835	W St. NW., at Massa-	240.58 43.00	24 24		301.32 48.98	242, 94 14, 74	18.00 3.03	562, 26 66, 75
836	Massachusetts Ave., be- tween W. St. and Water Side Drive.		ļ	Interceptor con- nection.		45. 25	(4)	45. 25
837	tween New Hamp- and Illinois Aves.	242, 20	24	_	333.74	412.40		746.14
838	Georgia Ave. and Dah- lia St.	·····	·····	Interceptor con- nection.	26.66	58.25	(4)	84.91
839	Brentwood Rd. NE., between Monroe and Bladensburg Rd.	1,508.50	4		403.01	333.07	(4)	736.08
840	Eastern Ave. at Brent- wood Rd. NE.		·····	Special construc-	99.80	209.63	·····	309. 52
841	Bladensburg Rd. NE., between Earle St. and Eastern Ave.	590.00	10		234. 62	296, 50		531. 12

<sup>1 4</sup> by 4 feet.
2 5 feet by 5 feet 5 inches.

<sup>2</sup> feet by 2 feet 6 inches.
Repaying charge not yet reported by surface division.

Table No. 6.—Sewer construction from the appropriation for suburban sewers, fiscal year ended June 30, 1916—Continued.

		1				Cost of-		
Order No.	Location.	Length.	Size.	Character of work.	Ma- terial.	Labor.	Repay- ing.	Total cost.
842	Bladensburg Rd. NE., between Earle St. and Brentwood Rd.	Lin. ft. 561.00	In. 10		\$230. 79	\$304.14		\$534. 92
843 844	Alley square 2900 9th St. NW., between Shepherd and Taylor	351.20 52.40	18 21		17. 98 354. 69	28.75 666.71	\$52.79	46. 73 1.074. 19
845	Sts. Crossing 14th St. in line	71.50	18	<b>'</b> 	63.78	128.22	(1)	192.00
846	of Buchanan St. Crossing 14th St. in line of Allison St.	71.90	18		52. 31	150.49	(1)	202. 80
847	Crossing 14th St. in line of Webster St.	71.50	18	· · · · · · · · · · · · · · · · · · ·	82, 49	249.74	(1)	332. 23
848	Filmore trunk sewer SE., north of S St.	120.00	18		212. 62	361. 26		573. 88
849	Monroe St., north of Nichols Ave.		ļ	Interceptor con- nection.	15.82	45.74		61. <b>56</b>
850	Over Anacostia main in- terceptor, W St. SE., south of Baltimore & Ohio R. R.		ļ	do	47.74	120.87		168.61
851	In line of Chicago St., north of Baltimore & Ohio R. R.		ļ	do	21.97	80.68		102.65
853	Zoo Park, at junction east and west, Rock Creek.			do	52. 29	174.56		226. 85
854	Connecticut Ave. NW., south of Porter St.	<b> </b>	ļ	Manhole and shaft.	225. 54	284. 27	ļ	509. 81
855	14th St. Rd. east of 16th St. NW.		ļ	4 manholes raised	50.32	127.43		177.75
861	Crossing 16th St. NW., in line of Varnum and Webster Sts.	154.00	24		200. 32	308.97	16.63	525. 92
862	Gallaudet St. and Ken- dall St.			3 gravel basins	99.93	191.21		291. 14
863	Girard St. NW., between Sherman and Georgia Aves.	ļ		Manhole	17.42	17.44		34.86
	Total	7, 979. 18		]	8,098.28	18,847.66	278. 81	27, 224, 75

<sup>&</sup>lt;sup>1</sup> Repaying charge not yet reported by surface division.

TABLE No. 7.—Sever construction under whole cost system from miscellaneous trust fund deposits for fiscal year ended June 30, 1915.

Order No.	Loostlon.	Length.	Size.	Remarks.	Amount of deposits.	Cost of work.	Amount returned.	For whom done.
22245956 96666666	Perry Place N.W., west of Fourteenth Street Alley, square 284. Alley, square 297. Alley, square 297. Alley, square 287. Alley, square 287. Alley, square 287. Alley, square 287. Alley, square 288. Eleventh Street N.W., between Florida Avenue and Clifton Street. Fourteenth Street N.W., between B and C Streets alley, square 288.	Lin. feet. 261.28 283.08 27.75 237.08 237.08 541.08	Inches. 13 10 24 12 12 12 13	2 manholes	\$140.00 504.00 220.00 62.50 82.50 350.00 120.00 2,500.00	\$119, 11 500, 00 160, 61 61, 09 337, 94 98, 24 98, 24 221, 88	\$20.89 56.39 12.41 12.06 28.73 28.13	
1000 1010 1012	Bureau of Engraving and B Street SW., eastward if Fourteenth Street NW., 1	8448 888	æ 51 æ	2 sludge tanks. }		2, 464.53 368.37 996.82	61.63	
1015 1015 1016 1017	Water Street, east of Washington & Southern R. R. Montello Avenue NE., between Morse and Neal Streets Alley, square 2591.  Montague Street NW., produced to parcel 87/189.  Fourteenth Street NW., between F and G Streets	28.88 26.88 28.88 28.88 28.88	E 21 80 0	2 manholes flagged	1,000,00 1285,00 110,00 300,00	785.05 71.92 113.96 921.08 31.90	214.96 * 53.08 * 78.92 168.01	trio Co. Bamuel Koblen. L. E. Breuminger. Wm. Ramsay. Washington Railway & Elec-
1018 1020 1020 1020	Alley, square 3028. Alley, square 3028. Alley, square 3028. Alley, square 3028. Alley, square 3028. Alley, square 3028. Alley, square 3028. Alley, square 3028. Annay Iventa 3028. Annay Ivent 3028. Annay Ivent 3028. Annay Ivent 3028.	217.20 177.75 10.00 183.00	2222	1 manhole. 2 manholes. Gutter drop.	3348 3388 8888 8	354 01 267.88 20.45 573.95	82.12 82.12 82.12 82.12 83.0.13	Herry A. Vieth. George C. Pumphrey. William Schmidt. George A. Fuller Co. John H. Miller.
	Total	3, 402. 45			12, 232. 03 10, 156. 83	0, 156. 83	2,079.26	

<sup>2</sup> Refund not made; repaying to be charged.

18 by 8 feet.

\* \$3.96 charged to appropriation.

Table No. 8.—Sewer construction from miscellaneous appropriations, fixal year ended June 30, 1915.

		Sewer laid.	laid.			Cost of-			The Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract o
Order No.	Location.	Length.	Size.	Remarks.	Material.	Labor.	Contin- gencies.	Total cost.	Appropriation.
1100	Southeast corner Virginia Avenue and Eleventh Street	Lin. feet. 33.00	Inches.	1 basin constructed	<b>1</b>	\$24.00	\$1.45	\$30.39	Assessment and permit sew-
1102	Sixteenth Street and Park Road NW., northwest corner. Colorado Avenue NW., 130 feet-west of Fourteenth	. 27.8 6.88	22	do.	88	37.68	22 88 22 88	85.55 51.55	Suburban roads, 1915. Suburban roads, 1914.
1104	Allery, square 181. Camp Good Will, Rock Creek Park.	883.00	œ	Replaced alley bestn	141.76	26.83 28.83	19.2 19.33	1 54. 40 408. 90	Repairs to streets, 1915. Care and improvement, Rock
1106	Southeast corner of Sixth and C Streets SE	9.0	2	1 basin constructed	20.13	36.75	2.3	58.67	Assessment and permit
1106	Fourteenth Street and Rhode Island Avenue NWBathing beach.	30.00	13	2 basins rebuiltInjector chamber, 3	35.88 88.88	191.24 20.74	7.51	157.64	Repairs to streets, 1915. Repairs, bathing beach, 1915.
1108	Fiften and one-half Street NW., between N Street and Massachusetts A venue.	88.00	22	sluice gates. 1 basin constructed	67.76	117.84	88	\$ 214.68	Repairs to streets, 1915.
1100	Quarantine building, reservation No. 13.	8.8 8.8	••		2.5	8.33	28.0	143.61	Prevention of contagious
1110	Southwest corner Maryland Avenue and Eighth Street. Southwest corner Maryland Avenue and Ninth Street. Southwest corner haryland Avenue and Ninth Street.	888 886 	-222	'I besin rebuiltdo.	82.28	£.35 3.25	**************************************	80.23	Repairs to streets, 1915.
113	Southeast corner Maryland Avenue and Eleventh Street. Northwest and southwest, corner Maryland Avenue		1	1 basin adjusted 1 besin adjusted, 1	27.75		4.8	9.5 5.2	
1115	and Eleventh Street. Northwest corner Second and M Streets. Southwest corner Maryland Avanue and Thirteenth	88	22	basin rebuilt. 1 basin constructeddo.	11.38	8.3 8.8	4.8 8.4	25. 27. 28.	Ď.
1117	Street. Northwest corner Fifteenth and Fuller Streets			1 besin adjusted	6.78	22.38	1.41	29.52	Fifteenth Street NW., Euclid Street to Columbia
1118	Fifteenth and Euclid Streets Irving Street, 460 feet—east of Georgia Avenue			2 basins adjusteddo	3.31	19.61 12.60	1.15	<b>2.</b> 10	Road. Do. Irying Street NW., Park
1120	Fifteenth Street, north of Euclid Street	12.00	21	1 basin rebuilt	3.2	47.88	3.57	74.87	Fifteenth Street NW., Euclid Street to Columbia
E222	Northeast corner M and Canal Streets Southwest corner Maryland Avenue and Elliott Street. Southwest corner Maryland Avenue and Fourteenth	12.00	2	dododododo1 basin adjusted	24.0 884	83.4 825	828	82:1 825	Road. Southwest schedule, 1915. Repairs to streets, 1915. Do.
1124	Ellott Street, south of Maryland Avenue NE	_:		1 besin rebuilt	29.31	82.26	4.08	<b>8</b> 8. <b>6</b>	Do.

Do.	Do.	Do.	Do.	Nineteenth Street NW., be- tween Kalorama Road and	Entrinore Street. Repairs to streets, 1915. Georgetown schedule, 1915. Repairs to streets, 1915.	Do. Assessment and permit	Bidewalks and curbs, 1915. Northeast schedule, 1915. Repairs to streets, 1915. Southwest schedule, 1915.	Pennsylvania Avenue Bridge	sartos roca Creek. Southwest schedule, 1915. Do. Repairs to streets, 1915.	Care and improvement of	Fire department, driveways	Assessment and permit, 1915.	Second Street NE., end of	Southeast schedule, 1915.	P Street NW., between Rock Creek and Twenty-eighth	P Street NW., between Rock	Do.	aving. aving.
11.96	63.61	56.46	182.19	130.67	44.3 844	38.39 28.29	8.88.84 8.88.88	3, 137.83	2.7.12 2.2.2 2.2.2 2.2.2 2.2.2	21.60 156.19	• 114.66	• 128.68 388.12	62.42	9.43	71.88	164.01	47.51	his for rep his for rep
. 57	æ. 8	8.8	80.68	8.	88.85 \$3.50	8.4 88.3	8885 8885	140.42	7.00 5.57 8.01	1.8	4.87	5.90 18.48	2.87	3.	3.41	7.81	2.26	• \$12.25 of this for repaying. • \$12.84 of this for repaying.
5.68	<b>24.78</b>	82.78	106.62	8 8	### ## ## ## ## ## ## ## ## ## ## ## ##	51.00 90.38	3725 8822	2, 120.93	81.88 8188	17.00	83.52	239.23	46.51	5.25	51.50	103, 49	28.00	••
5.78	8	21.02	88.88	8.08	448 872	22.06 37.17	8883 8783	867.48	3683 8288	30.76	33.91	35.62 130.41	12.94	3.72	16.78	7.28	17.25	
2 besins adjusted	1 basin rebuilt	qo	3 basins rebuilt	2 basins rebuilt	1 besin rebuiltdodo.	1 besin constructed 1 besin rebuilt	do do 1 basin constructed 2 basins rebuilt		2 basins constructed 2 basins rebuilt 2 basins rebuilt 2 basins rebuilt	Connection	1 basin constructed	1 basin rebuilt	1 bestn rebuilt	1 basin adjusted	1 besin rebuilt	2 basins rebuilt		8 214.55 of this for repaving. 4 6 feet diameter.
	2	21	22	2	ដូង	22	2222	ε	2222	<b>60</b>	21	32	2		2	9		1 \$14.55 6 feet
:	18.00	8.6	88	88.08	2.00 00.00	44 88	4228 8888	98.75	%4.4 8888	167.00	39.00	27.08 190.08	<b>9</b> .00		8.8	15.00	_	
Bonthwest corner Maryland Avenue and Twelfth Street;  -	Figure between Twenth and Thirtenin Sifeets. Northwest corner Maryland Avenue and Fourteenth	Southwest corner Vermont Avenue and Q Street NW.	Street, Northest and southwest corners Fourteenth	Northeast and southeast corners Nineteenth Street and Mintwood Palce NE.	Northeast corner Sixth and I Streets NW. Wisconsin Avenue, at Thirty-fourth Street Squitheast and southwest corners Fourth and K Streets	Southwest corner First and K Streets NW. Southwest corner Eighth Street and Massachusetts Ave.	Into N.C. Southeast corner Eighth and B Streets NE. Northeast corner Nith and I Streets NE. First Street SW. between M and N Streets. Northeast and northwest corners Sixth and K Streets.	Rock Creek and Pennsylvania Avenue Bridge	Northeast and southeast corners Seventh and K Streets. Southwest corner Fourends-shalf and K Streets. Northeast corner Eighth and K Streets. Southeast and southwest corners of Seventh and D	Northwest corner Lincoln Road and V Street NE Camp Good Will, Rock Creek Park	Eighth Street NW., between D and E Streets	K Street NE., between North Capitol and First Streets Hamilton Place west of First Street and Alley Square 564	Second Street south of Todd Place	E Street SE., between Seventeenth and Eighteenth .	Surests	Northeast and northwest corners of Twenty-eighth	Northwest corner Twenty-seventh and P Streets NW	1 \$4.29 of this for repaying. 2 \$19.80 of this for repaying.
1126	1126	1127	717	1120	8111 1132 1133	1133	1138 1138 1138	1139	3222	111	1146	11 14 14 14	1150	1161	1152	1163	1154	

TABLE No. 8.—Sever construction from miscellaneous appropriations, fiscal year ended June 30, 1915—Continued.

}		Sewer laid.	ald.			Cost of-			
No.	Location.	Length.	Sits.	Remarks.	, Material.	Labor.	Contin- gencies.	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	Appropriation.
1155	Northwest and southwest corners Ninth and 8 Streets: northeest corner Ninth and T Streets.	Lin. fea. 10.00	Inches.	3 basins rebuilt	\$61.58	\$128.56	\$9.51	\$199.66	Repairs to streets, 1915.
1156		88	225	5 basins rebuilt	158.27	308.41	8	490.06	Do.
1158	_	38	000		11. 43	50.75 27.22	# 8 8 8	\$ \$ \$	Maintenance, filtration plant. Do.
911 1911 1913		<b>4</b> 8		,	4 4 57	31.75	82	5.5	S O O
122		888 200	222	I basin constructed. 2 basins rebuilt.	844 223	25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25.25 25 25.25 25 25 25 25 25 25 25 25 25 25 25 25 2	185 288	138.01 10.02 28.8	Do. Southeast schedule, 1915. Repairs to streets, 1915.
1165		21.8	91	2 basins constructed	4	81.62	G. 25	139,74	Assessment and permit
1168	Georgia Avenue and Dal Northeast and northwe Streets N.E.	84.00 12.00	•2	2 bacins rebuilt	17.04 38.57	100, 13	88 44	22 23 23 23 23	Naintenance, filtration plant. Repairs to atreets, 1915.
1160	ي.	9.62	9 <b>°</b>	2 basins constructed	54.16	108.13	2.8	166.15	P Street NW., between Rock Creek and Twenty-eighth
1170	First and T Streets; First and S Streets; First and Seaton Streets, and Effect and S Streets			4 basins adjusted	32.46	82.27	8	121.55	Repairs to streets, 1915.
1171	Northeast and southeas	30.00	ជ	2 basins constructed	51.02	103.98	7.75	162.70	Assessment and permit
1172	Fifteenth Street NW., near corner Euclid Street.	88.00	9	Vo 1 basin constructed	20.52	2,28	4.20	88. 10	tNW.
1173	Northeast corner Thirty-first and K Street	3.00	2	10 1 basin rebuilt	25.28	3	સ ક	2,8	Columbia Granite and
1175 1176 1177	K Street NE., between North Capitol and First Streets. O Street, west of Tennessee Avenue NE. Northeast corner Fifth and T Streets; northwest corner Fifth and U Streets.	33.00 57.00	ន្ទន	2 besins rebuilt.	28. 21 47. 52 64. 04	25.37 26.37 29.37	44% 84%	130.81 131.13 160.08	Repairs to streets, 1915. Northeast schedule, 1915. Repairs to streets, 1915.
	Total	3, 183, 25			3, 420, 18	7,087.86	516.23	11,064.82	

1 \$8.37 of this for repaving.

2 \$8.45 of this for repaving.

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Table No. 9.—Inspectors and other employees of the sewer division, temporarily employed, and the appropriations from which paid, fiscal year ended June 30, 1915.

Appropriations.	Inspectors.	Overseers.	Other employees.	Total.
Construction, sewerage system:  Main and pipe sewers. Suburban sewers. Assessment and permit work. Construction, sewage-disposal system: Anacostia main interceptor. Rock Creek main interceptor. Maintenance: Cleaning and repairing. Sewerage pumping service.	\$1, 163. 75 3, 957. 56 2, 712. 04 78. 88 1, 507. 50 717. 64	\$676, 87 885, 00 585, 00	\$2, 419, 20 4, 642, 00 3, 487, 85 339, 40 276, 55 1, 043, 50 1, 139, 00	\$4, 259, 82 8, 599, 56 6, 584, 89 418, 28 1, 784, 06 2, 296, 14 1, 139, 00
Total	10, 187. 37	1,596.87	13, 347. 50	25, 081. 74

Table No. 10.—Unit cost for construction of various sizes of pipe sewers, and for storm-water receiving basins, showing the cost of labor and cost of material, and the total cost, fiscal year 1915.

Obs. Assessed	Unit cos	t per foot.	Total
Size of sewer	Labor.	Material.	cost per foot.
8-inch diameter 19-inch diameter 13-inch diameter 18-inch diameter 18-inch diameter 21-inch diameter 21-inch diameter 24-inch diameter 34-inch diameter	\$0. 577 1. 117 1. 252 1. 561 1. 631 1. 893 1. 780 54. 331	\$0. 191 . 423 . 507 . 672 . 887 1. 184 1. 452 26. 893	\$0. 768 1. 540 1. 759 2. 233 2. 518 3. 077 3. 282 81. 324

TABLE No. 11.—Average cost of pipe sewers for 15 years.

		nch neter.		nch neter.		inch neter.		inch neter.		inch neter.		inch neter.		inch neter.
Year.	La- bor.	Ma- terial.	Le- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial.	Le- bor.	Ma- terial.	La- bor.	Ma- terial.	La- bor.	Ma- terial
1901 1902 1903 1904 1905 1906 1906 1908 1909 1910 1911 1911 1912 1913 1914 1914	\$0. 78 .83 .80 .97 .98 .87 1. 42 1. 34 1. 34 1. 00 1. 01 1. 06 1. 02 .78	\$0.30 .32 .36 .36 .38 .33 .43 .42 .36 .29 .27 .25 .26 .26	\$0.86 .97 1.03 .92 .96 1.19 1.43 1.16 .99 1.02 1.06 1.06 1.06	\$0. 41 . 41 . 53 . 55 . 56 . 47 . 48 . 50 . 36 . 35 . 32 . 33 . 29 . 45	\$0.92 1.04 1.09 1.17 1.19 1.26 1.30 1.44 1.46 1.12 1.17 1.20 1.35 1.32 1.25	\$0. 46 . 46 . 54 . 65 . 60 . 54 . 61 . 46 . 43 . 40 . 39 . 38 . 51	\$1. 19 1. 46 1. 32 1. 45 1. 41 1. 41 1. 46 1. 59 1. 19 1. 36 1. 46 1. 53 1. 44	\$0.64 .62 .73 .81 .77 .67 .70 .75 .56 .52 .52 .52	\$1. 38 1. 74 1. 52 1. 61 1. 45 1. 53 1. 82 1. 91 1. 58 1. 49 1. 64 1. 63 1. 74	\$0. 73 . 78 . 81 . 91 . 89 . 78 . 85 . 90 . 62 . 66 . 67 . 75 . 89	\$1.50 1.91 1.57 1.94 1.92 1.88 2.09 1.74 1.67 1.52 1.50 1.70 1.93 1.69	\$0. 89 . 96 1. 06 1. 24 1. 01 . 93 . 98 1. 14 1. 07 . 85 . 75 . 88 1. 08 1. 34	\$2.20 2.43 1.74 2.24 1.87 2.45 2.45 2.66 1.91 1.72 1.82 2.1.76 2.20 2.1.78	\$1. 11 1. 22 1. 33 1. 44 1. 42 1. 22 1. 50 1. 11 1. 10 1. 20 1. 44

TABLE No. 12.—Contract prices for construction materials for 15 years.

[Cement per barrel, sand and gravel per cubic yard, terra-cotta sewer pipe per linear foot.]

	Ce-		Peb-			Ten	ra-cotta j	pipe.		
Year.	ment.	Sand.	bles.	8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
1901 1902 1903 1904 1905 1906 1906 1907 1908 1909 1910 1911 1911 1912 1913 1914	1.82 1.96 1.75 1.13 1.35 1.55 1.52 1.20 .975 .99	\$0. 68 .65 .55 .85 .81 .85 .74 .54 .55 .345 .345	\$0. 93 .88 .87 .85 .85 .1.05 .97 1.04 .75 .65 .435 .435	\$0. 12 .115 .12 .12 .14 .122 .155 .155 .155 .125 .121 .105	\$0. 165 .17 .185 .228 .20 .1647 .195 .225 .1707 .15 .176 .15 .256	\$0. 185 . 205 . 235 . 297 . 29 . 2236 . 261 . 30 . 239 . 20 . 22 . 18 . 22 . 22 . 22 . 245	\$0. 265 .275 .33 .401 .40 .2997 .358 .405 .3233 .27 .30 .31 .351 .432	\$0. 37 .39 .42 .5049 .50 .3672 .443 .51 .4066 .3825 .42 .494 .608	\$0. 575 . 59 . 62 . 7425 . 74 . 5454 . 75 . 5975 . 5625 . 55 . 78 . 96 . 96	\$0. 72 .77 .80 .965 .96 .7263 .848 .975 .7775 .7312; .715 .715

TABLE No. 13.— Maintenance sewerage system—Work for 10 years.

	1915	1914	1913	1912	1911
Main sewers cleanedfeet	4,885	1,113	4,525	4,071	300
Pipe sewers cleaneddo	156,773	145, 767	128, 545	122,838	161, 190
Pipe sewers flusheddo Manholes flushed	6,077,129	6, 339, 122	6,705,367	5,906,405	5,685,423
Manholes nushed	15,473	17, 208	18,594	16,783	15,994
Sumps, regs, gates, cl-insp	3,618	4,222	3,949	2,245	530
Basins husbed	15,242	18, 586	18, 416	5,298	11,950
Basins cleaned	51,201	45,502	40,244	38,760	60,379
Sludge removed: Pipe sewerscubic feet	4 400	4 000	0		
Pipe sewers	4,499	4,079	8,723	2,479	3,538
Basinsdo Sediment chamberdo	191, 928	160,660	168,696	147,741	166, 428
Sediment chamber	71, 100	62,856	66,744	53,140	58, 131
Screens. pounds.  Main sewers inspected. miles.	708, 388	798, 666 134	869,640	1,084,128	833, 617
Pipe sewers inspecteddo	137.36 1.150	1,200	130.90 1,270	128.24 491.47	122.78
ripe sewers inspected	1,100	1,200			469.42
Basins repaired	163	124	117	141	155
Basins repaired.	1910	1909	1908	1907	1908
	1910	1909	1908	1907	
Main sewers cleaned feet.	1910	1909	1908	1907	1906
Main sewers cleaned feet.	1910 1,185 149,626	1909 11,624 153,145	1908 13,723 84,914	1907 24,724 86,101	1906 10,360 111,879
Main sewers cleaned. feet.  Pipe sewers cleaned do  Pipe sewers flushed do  Manholes flushed do	1910 1, 185 149, 626 3, 717, 332	1909 11,624 153,145 1.873,142	1908 13,723 84,914 1,795,200	1907 24,724 86,101 1.846.300	1906 10,360 111,879 1,800,200
Main sewers cleaned feet.  Pipe sewers cleaned do Pipe sewers flushed do Manholes flushed Sumos. ress. gates, cl-insp	1910 1, 185 149, 626 3, 717, 332 11, 943	1909 11,624 153,145	1908 13,723 84,914	1907 24,724 86,101	1906 10,360 111,879 1,800,200
Main sewers cleaned feet.  Pipe sewers cleaned do Pipe sewers flushed do Manholes flushed Sumos. ress. gates, cl-insp	1910 1, 185 149, 626 3, 717, 332 11, 943	1909 11, 624 153, 145 1, 873, 142 5, 295	1908 13,723 84,914 1,795,200 6,093 8	1907 24,724 86,101 1,846,300 2,351	1906 10,360 111,879 1,800,200
Main sewers cleaned feet.  Pipe sewers cleaned do  Pipe sewers flushed do  Manholes flushed Sumpe, regs, gates, cl-insp  Basins flushed Beard	1910 1, 185 149, 626 3, 717, 332 11, 943 568 18, 884 18, 752	1909 11, 624 153, 145 1, 873, 142 5, 295 11 2, 829	1908 13,723 84,914 1,795,200 6,093 8	24,724 86,101 1,846,300 2,351 8	1906 10,360 111,879 1,800,200 4,822 8
Main sewers cleaned feet.  Pipe sewers cleaned do  Pipe sewers flushed do  Manholes flushed Sumpe, regs, gates, cl-insp  Basins flushed Beard	1910 1, 185 149, 626 3, 717, 332 11, 943 568 18, 884 18, 752	1909 11,624 153,145 1,873,142 5,295 11 2,829 52,634	1908 13,723 84,914 1,795,200 6,993	1907 24,724 86,101 1,846,300 2,351	1906 10,360 111,879 1,800,200 4,822 8
Main sewers cleaned feet.  Pipe sewers cleaned do  Pipe sewers flushed do  Manholes flushed Sumpe, regs, gates, cl-insp  Basins flushed Beard	1910 1, 185 149, 626 3, 717, 332 11, 943 568 18, 884 18, 752	1909 11, 624 153, 145 1, 873, 142 5, 295 11 2, 829 52, 634 3, 334	1908 13, 723 84, 914 1, 795, 200 6, 093 8 40, 866 3, 256	24,724 86,101 1,846,300 2,351 8 45,809	10,380 111,879 1,800,200 4,822 8
Main sewers cleaned feet.  Pipe sewers cleaned do  Pipe sewers flushed do  Manholes flushed Sumpe, regs, gates, cl-insp  Basins flushed Beard	1910 1, 185 149, 626 3, 717, 332 11, 943 568 18, 884 18, 752	1909 11, 624 153, 145 1, 873, 142 5, 295 11 2, 829 52, 634 3, 334 188, 460	1908 13,723 84,914 1,795,200 6,093 8 40,866 3,256 277,319	24,724 86,101 1,846,300 2,351 8 45,809 3,455	1906 10,380 111,877 1,800,200 4,822 56,884 3,322
Main sewers cleaned	1910 1, 185 149, 628 3, 717, 943 18, 884 57, 753 5,052 190, 204 58, 577	1909 11, 624 153, 145 1, 873, 142 5, 285 111 2, 829 52, 634 3, 334 188, 480 61, 695	1908 13,723 84,914 1,795,200 6,083 8 40,886 3,256 277,319 30,000	24,724 86,101 1,846,300 2,351 8 45,809	1906 10,380 111,879 1,800,200 4,822 8 56,884 3,322 193.077
Main sewers cleaned	1910 1, 185 149, 628 3, 717, 332 11, 943 18, 884 57, 763 5, 052 190, 204 88, 577 890, 230	1909 11,624 153,145 1,873,142 5,295 11 2,829 52,634 3,334 188,460 61,695 16,394	1908 13,723 84,914 1,795,200 6,083 8 40,886 3,256 277,319 30,000	24,724 86,101 1,846,300 2,351 8 45,809 3,455	1906 10,380 111,879 1,800,200 4,822 8 56,884 3,322 193.077
Main sewers cleaned feet.  Pipe sewers cleaned do Pipe sewers flushed do Manholes flushed Sumps, regs, gates, cl-insp Basins inshed Basins cleaned Sludge removed:  Pipe sewers cubic feet.  Basins do Bediment chamber do Bediment chamber do Basins pounds do Basins do Bediment chamber do Bediment chamber do Bediment chamber do Bediment chamber do Bediment chamber miles miles	1910 1, 185 149, 628 3,717, 332 11, 943 568 18, 884 57, 753 5,052 190, 204 58, 577 890, 230	1909 11,624 153,145 1,873,142 5,295 111 2,829 52,634 188,460 61,695 16,394	1908 13,723 84,914 1,795,200 6,093 8 40,886 3,256 277,319 30,000	24,724 86,101 1,846,300 2,351 8 45,809 3,455 347,598	1906 10,360 111,879 1,800,200,200 4,822 4,822 56,884 3,322 193,077
Main sewers cleaned	1910 1, 185 149, 628 3, 717, 332 11, 943 18, 884 57, 763 5, 052 190, 204 88, 577 890, 230	1909 11,624 153,145 1,873,142 5,295 11 2,829 52,634 3,334 188,460 61,695 16,394	1908 13,723 84,914 1,795,200 6,083 8 40,886 3,256 277,319 30,000	24,724 86,101 1,846,300 2,351 8 45,809 3,455	1906 10,380 111,879 1,800,200 4,822 8 56,884 3,322 193.077

TABLE No. 14.—Summary of sewerage system for 25 years.

	1	otal lengtl	ı.	Total	l cost.	Annual co nance and	st, mainte- operation.
Fiscal year.		· · · ·	ı		l _		1 _
	Trunk sewers.	Pipe sewers.	All sewers.	Sewerage system. <sup>1</sup>	Sewage- disposal system.	Sewerage system.	Sewage- disposal system. <sup>2</sup>
	Miles.	Miles.	Miles.				
<u>91</u>	64.89	216.79	281.68				
92	67.16	227.60	294.76	7,842,721.62		43,000.00	
93 94	68.37 71.32	238. 45 250. 13	306.82 321.45				
95	74.48	260.13	334.68			45,000.00 45,000.00	
96	77.65	270.28	347.93	9 661 721 69		45,000.00	
97	81.36	284.06	365.42			50,000.00	
98	83.92	298.91	382.93	9 047 731 62		50,000.00	
99	85.65	307.36	393.01	9, 183, 731, 62		50,000.00	
00	88.30	317.20	405.50	9,309,731.62		50,000.00	
01	90.89	327.86	418.75	9,515,731.62		50,080.00	
02	93, 49	338, 13	431.62			58,000.00	
03	96.31	351.73	448.04			58,000.00	
04	99. 12	357.70	456.82	9,940,731.62		58,000.00	
05	103. 21	365.60	468.81	10,040,881.62		58,000.00	
06	109.09	375.26	484.35	10, 128, 881. 62		42,000.00	<b></b>
07	112. 20	389.24	501.44	10, 363, 881. 62	\$3,714,823.00	38,000.00	* \$37, 295.
08	113. 94	407.24	521.18	10, 536, 681. 62	3, 952, 768. 65	44,500.00	38,625.
09	117. 24	424.02	541.26	10,688,681.62	4,031,888.27	45,000.00	58,000.
10	119. 20	448.78	567.98	10,860,556.62	4, 095, 630. 70	48,500.00	58,000.
11	122.78	469.42	592.20	11, 204, 188. 79	4, 146, 228.01	50,000.00	58,000.
12	126.01	492.52	618.53	11, 539, 374. 28 11, 922, 177. 04	4, 228, 555, 94	50,000.00	59,500.
13	130.90	513.38	644.28	11, 922, 177. 04	4, 366, 624, 43	50,000.00	59,500
14	133. 50	527.99	661.49	12, 470, 940. 74	4, 495, 830. 13	50,500.00	62,000
15	137.36	5 <del>44</del> . 75	682.11	13, 032, 082, 86	4, 624, 186. 31	50,500.00	64,000.

Exclusive of sewage-disposal system.
 The sewage-disposal system went into operation July 1, 1906.
 Handling a part of the sewage only during these years.

TABLE No. 15.—Rights of way acquired during fiscal year ended June 30, 1915.

For separate system trunk outlet sewer (Broad Branch trunk) from a point on the northern line of Broad Branch Road NW., in a general northerly and northwesterly

direction, to the northwest corner of and through parcel 60/1.1

For separate system trunk outlet sewer (Broad Branch trunk) in line of Northampton Street, produced, east from Thirty-second Street NW., and thence in a general south-

For separate system trunk outlet sewer (Broad Branch trunk) from a point on the northern line of parcel 60/14; through parcel 61/1. For separate system trunk outlet sewer (Broad Branch trunk) from a point on the northern line of parcel 60/9, in a general northerly direction, to a point on the southerly line of parcel 61/1; through parcel 60/14. For separate system trunk outlet sewer (Broad Branch trunk) from the northwest

corner of parcel 60/1, in a general northwesterly direction, to a point on the southern boundary line of parcel 60/14; through parcel 60/9.

For separate system trunk outlet sewer (Rock Creek main interceptor) in Montague Street, NW., extended, through parcel 87/113.1

For separate system service sewer (Rock Creek main interceptor) south from Madison Street, NW. to "B" Road, through lot 20, square W. 2721.

For separate system trunk outlet sewer (Rock Creek main interceptor) from point on

north line of east and west 15-foot alley, square W. 2722, due north to its intersection with the eastern boundary line of Rock Creek Park, through parcel 87/212. For separate system trunk sewer (Michigan Avenue trunk) from Bates Road to alley square 3814, along northeasterly boundary line of and passing through parcels 135/2

For separate system outlet sewer (east side interceptor) from a point on the northern line of Brentwood Road NE., running north about 85 feet in line of Clinton Street, extended, thence in an easterly direction to a point on the western line of Eastern Avenue, extended, about 47 feet north of northern line of Brentwood Road; through percels 166/2 and 166/3.2

<sup>&</sup>lt;sup>1</sup> Voluntary dedication.

<sup>&</sup>lt;sup>2</sup> Consideration paid by condemnation.

For an auxiliary sewage disposal plant, known as Woodridge substation (east side interceptor); title in fee simple to a tract of land containing 6,000 square feet, located at the intersection of Brentwood Road and Eastern Avenue, a part of parcel 166/2.1

For separate system trunk outlet sewer (Anacostia main interceptor) in Forty-second Street NE., extended, from point north of Hunt Place to Deane Avenue; through parcel 177/17. Washington Railway & Electric Co., owner of record.

For separate system service sewer (Anacostia main interceptor) in Forty-ninth Street, NE., extended, from south of Meade to north of Nash Streets, extended; in Nash Street, extended, between Forty-eighth Place and Forty-ninth Street; and in Meade Street, extended, between Forty-eighth Place and Forty-ninth Street, extended. through parcel 188/2.2

For combined system College Pond trunk (upper Potomac interceptor) from Washington Railway & Electric Co.'s right of way, at College Pond Run, in a general southerly and westerly direction to the Potomac River, through the property of the Chem-

peake & Ohio Canal Co.; Chesapeake & Ohio Canal Co., owner of record.

For separate system trunk outlet sewer (Rock Creek main interceptor) from a point on the western line of parcel 87/113, just north of Montague Street, produced, in a general westerly direction to Beach Drive, through Rock Creek Park, the property of the United States Government.3

For section 6, of the Rock Creek main intercepting sewer, between park boundary north of Klingle Ford Road and a point west of Boulder Bridge, through Rock Creek Park, the property of the United States Government.<sup>3</sup>

For section 4, of the Rock Creek main intercepting sewer, from a point near the Connecticut Avenue Bridge to the northern boundary of Zoological Park at Klingle Ford, through the Zoological Park, the property of the United States Government.

For intercepting sewer (Rock Creek main interceptor) from a point near the Adams Mill Road entrance to the Rock Creek Park, along the west bank of Rock Creek, through the Zoological Park, the property of the United States Government. For storm-water relief sewer (Fourteenth Street, SE. trunk) at Pennsylvania Avenue

and Fourteenth Street SE., through Reservation No. 54, the property of the United States Government.\*

For combined system A Street, NE. trunk sewer at First Street, NE., in line of A

Street, through the property of the United States Government.

For connection of separate system trunk sewer in the west side of Fifteenth Street, NW., to B Street and New Jersey Avenue interceptor, in Reservation No. 1, through the property of the United States Government.

For inlet channel and swinging gate for combined system trunk sewer, just east of Park Place, NW., in line of Irving Street, produced, in Soldiers' Home Grounds, the property of the United States Government.

For combined system service sewer (Q Street trunk) in Willow Tree Alley Park (square 534), the property of the United States Government.

For combined system trunk outlet sewer, south of Water Street, SW., between Thirteenth and Fourteenth Streets, through land set aside as a site for the Central Light,

Heat and Power Plant, the property of the United States Government. For section 7, Rock Creek main intercepting sewer, crossing under Rock Creek, just north of Boulder Bridge; in Rock Creek Park, the property of the United States

Government.3

<sup>&</sup>lt;sup>1</sup> Consideration paid by condemnation.
<sup>2</sup> Consideration paid.

Permit not recorded.

Revocable license—not recorded.

TABLE No. 16.—Conduits laid during the fiscal year ended June 30, 1915.

Number of ducts.		Electric ar Co.	Chesapeal mac Telej	re & Poto- phone Co.	Western Telegra	n Union sph Co.	То	tal.
Cuess.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
1	Feet. 3,425.8 4,803.3 25,916.8 628.3 696.5 26.5	Feet. 3, 425. 8 9, 606. 5 103, 667. 2 5, 026. 4 8, 238. 0 424. 0	Feet. 352. 5 13, 450. 3 4, 927. 9 328. 5	Feet. 352. 5 26, 900. 6 19, 711. 6 1, 971. 0	Feet. 52.0 710.9	Feet. 52.0 1,421.8 2,460.0	Feet. 3,830.3 18,964.5 30,844.7 738.5 628.3 686.5 26.5	Feet. 3,830.3 37,928.9 123,378.8 4,431.0 5,026.4 8,238.0
Total	85, 487. 2	130, 387. 9	19,059.2	48, 935. 7	1, 172. 9	3, 933. 8	55, 719. 3	183, 257. 4

<sup>&</sup>lt;sup>1</sup> Postal Telegraph Cable Co. conduit.

TABLE No. 17.—Statement of electric conduits laid by the public-service corporations each year from 1901 to 1915, inclusive.

	Washingt Electr	on Ry. & ic Co.		c Electric er Co.		Traction o.
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
prior to Mar. 27, 1900	88.0	Feet. 569, 333. 0 704. 0	16,387.0 8,098.0	Feet. 1,814,966.0 65,952.0 89,958.0	Feet. 48, 218. 0	Feet. 399, 851. 0
	4,670.0	37,360.0	24, 655. 0 15, 635. 0 13, 798. 0 50, 057. 0	105, 492. 0 65, 412. 0 56, 892. 0 287, 311. 0		
	859. 0 420. 0	6,643.0 1,806.0	38,053.0 39,705.0 58,607.0 46,097.0	252, 741. 0 154, 940. 0 235, 225. 0 159, 320. 0	5, 285. 0 23. 0 11, 769. 0 263. 0	29,652.0 92.0 90,660.0 1,788.0
	42.0	168. 0 136. 0	56, 028. 0 63, 842. 0 39, 884. 0 45, 018. 0 35, 487. 2	240, 518. 0 836, 358. 0 146, 121. 0 170, 580. 0 130, 387. 9	914. 0 9, 416. 0 2, 300. 0	6,321.0 58,542.0 18,400.0
		ke & Poto-		Union Tele- ph Co,		e Co.
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
ior to Mar. 27, 1900	Feet. 79,920.0	Feet. 698, 920. (		Feet.	Feet.	Feet.
	876. 0 123, 604. 0 35, 905. 0	640, 448. ( 138, 649. (	3			
	39, 409. 0 80, 433. 0 75, 110. 0 58, 005. 0	147,002.0 278,693.0 281,405.0 228,725.0	10,635.0 383.0 11,463.0	1,710.0 51,775.0		
	11,769.0 56,582.0 44,823.0 19,966.0	90,680.0 140,859.0 297,760.0 45,698.0	2,322.0 2 329.0 329.0		531. 0 50, 238. 0	531.0 232,992.0
	22, 981. 0 24, 391. 0 19, 059. 2	51,779.	0 627.0		2,915.0 410.0	15, 704. 0 2, 460. 0

<sup>&</sup>lt;sup>1</sup> Figures on this line are for period from Mar. 27, 1900, to June 30, 1901.

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This table does not include 57 feet of private conduit, nor 1,027.7 feet of 6 duct, 99 feet of 1 duct, 27 feet of 2 duct, 27 feet of 10-inch terra-cotta pipe, 87.6 feet of 3 by 2.2 feet concrete subway, and 110 feet of 7 by 6 feet subway laid by the United States Government.

TABLE No. 18.—Summary of conduits laid from Mar. 27, 1900, to June 30, 1915.

Washington Ry. & Electric Co.			c Electric er Co.	Capital Traction Co.		Chesapeake & Poto- mac Telephone Co.		
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
<u> </u>	13.0	26.0	72, 348. 8	72,848.8	15,742.0	31, 484. 0	52,998.5	52,998.
3	18.0	20.0	148, 533. 3 236. 0	297,066.6 708.0	15, /42.0	31,959.0	281, 426. 3 5, 832. 0	562,852. 17,496.
<b>4</b>	33, 398. 0	133, 592. 0		1,846,011.2	22,681.0	90 724 0	179, 932. 9	719, 731.
	33,395.0	100,002.0	101,002.0	1,050,011.2	22,001.0	30,122.0	170,002.0	110,101.
)	5, 117. 0	30, 702. 0	46,074.0	276, 444, 0	8,174.0	49,044.0	95, 675. 5	574, 053.
					29.0	203.0	82.0	574.
	19,086.0	152,688.0	90, 246, 8	721.970.4	15,214.0	121,712.0	52,009.0	416,072.
)		,	7, 325. 0	65, 925. 0		1	114.0	1.026.
0	8,275.0	82,750.0	121.0	1,210.0	32.0	320.0	22, 364. 0	223,640.
<b>2</b>	11,458.0	137, 496. 0	50,653.5	607,842.0	908.0	10,896.0	11,336.0	136,032.
<b>3.</b>			874.0	4,862.0			212.0	2,756.
. <b>4.</b>	1,880.0	26,320.0	1,224.0	17,136.0	4,257.0	59,598.0	3,831.0	53,634.
5			68.0	1,020.0				<i>-</i>
6			4,997.5	79,960.0	401.0	6,416.0	8,037.0	128, 592.
7							636.0	10,812.
8	2,214.0	39,852.0					4, 149. 0	74,682.
0 <b></b>			562.0	11,240.0	830.0	16,600.0	1,407.0	28,140.
<b>2</b>		2,948.0			9,109.0	200, 398. 0	823.0	18, 106.
4			8,176.0	76, 224. 0			2,270.0	54, 480.
5							304.0	7,600.
<u>6</u>		··········		····	280.0	7,280.0		
8		2,436.0	2,174.0	60,872.0			····	
0			53.0	1,590.0			313.0	9,390.
2			77.0	2,464.0			485. 0 26. 0	15, 520. 936.
ß		7, 334. 0	3,854.0	138,744.0			<b>20.</b> 0	990.
8	193.0	1,331.0					1,589.0	63,560.
10 14			424.0	18,656.0				03,300.
i6		,	727.0	10,000.0			749.0	41,944.
8			7.0	406.0			1-0.0	41,012.
M				6, 784, 0			176.0	11,264.
		1	100.0	0,104.0			53.0	3,710.
2	1	1					118.0	8.496.
2	1	1			1		35.0	2,870.
<b></b>	1						30.0	2,014
Total	01 055 0	818 144 D	904 197 9	4, 309, 483. 9	77 AEE 0	EO4 87E O	796 000 9	240 047

TABLE No. 18.—Summary of conduits laid from Mar. 27, 1900, to June 30, 1915—Continued.

Number of ducts.	Western Union Tele- graph Co.		le- Postal Telegraph-Cable Co. Total.			
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
• • • • • • • • • • • • • • • • • • • •		93.0	15, 297. 0	15, 297. 0	140,737.8	140, 737.
• • • • • • • • • • • • • • • • • • • •		6,457.8	1,045.0	2,090.0	449, 988. 5	899, 976.
• • • • • • • • • • • • • • • • • • • •		20,820.0	34,001.0	136,004.0	13,008.0	39,024
• • • • • • • • • • • • • • • • • • • •		29, 180. 0 20, 885. 0	34,001.0	130,004.0	738, 810. 7 4, 177. 0	2, 955, 242. 20, 885.
	4, 232.0	25, 392, 0	17.313.0	103, 878, 0	176, 585, 5	1.059.513.
	.,	20,0020			111.0	777.
			1,140.0	9, 120. 0	177, 695, 3	1.421.562.
					7,439.0	66,951.
	. 183.0	1,830.0			30, 975. 0	309, 750.
		4,017.0		• • • • • • • • • • • • • • • • • • • •	74, 355. 5	892, 266.
		4,017.0			896. 0 11. 192. 0	11,635.
		660.0			11, 192.0	156, 688. 1, 680.
					13, 435, 5	214, 968.
					636.0	10,812
					6,363.0	114, 534.
					2,799.0	55,980.
					10,056.0	221, 452.
					5, 446. 0	130,704.
				• • • • • • • • • • •	304. 0 290. 0	7,600. 7,280.
					2.261.0	63,308.
				• • • • • • • • • • • • • • • • • • • •	366.0	10.980.
					562.0	17.984.
					3,880.0	139, 680.
					193. 0	7,334.
	.,				1,589.0	63,560.
· · · · · · · · · · · · · · · · · · ·					424.0	18,656.
	.,				749.0	41,944.
					7. 0 282. 0	406. 18.048.
· · · · · · · · · · · · · · · · · · ·		• • • • • • • • • • • • • • • • • • • •		• • • • • • • • • • • • • • • • • • • •	282.0 53.0	18,048. 3,710.
					118.0	8, 496.
	.]				35.0	2, 870.
Total	. 26,501.9	109, 334. 8	68,796.0	266,389.0	1,875,920.3	9, 136, 994,

This table does not include 9,550.7 feet of United States Government conduit, 7,915 feet of United States Government pipe lines, 216 feet of Washington & Old Dominion Ry. Co. conduit, 879.5 feet of Washington Market Co. pipe lines, 645.6 feet of private conduit, and 457 feet of 7 by 8 feet subway, 110 feet of 7 by 6 feet subway, and 87.6 feet of 3 by 2.2 feet subway laid by the United States Government.

TABLE No. 19.—Gas mains laid during the fiscal year ended June 30, 1915.

Size of main.	Washing- ton Gas Light Co.	George- town Gas Light Co.	Total.
2-inch 2-inch 4-inch 6-inch 8-inch 12-inch 16-inch	416. 5 1, 205. 2 27, 545. 5 9, 661. 1 3, 180. 4	5, 127. 0 1, 928. 4 5, 249. 0 2, 111. 0	416.5

TABLE No. 20.—Statement of gas mains laid by gas companies from 1907 to 1915, inclusive.

Fiscal year.	Washing- ton Gas Light Co.	George- town Gas Light Co.	Total.
1907. 1908. 1909. 1910. 1911. 1912. 1913.	36,605.0 61,642.0 83,692.0 69,237.0 48,192.1 88,583.0 61,234.1	Linear feet. 8,450.0 19,777.0 25,498.0 2,202.0 10,982.8 50,177.6 11,687.7 5,838.9 14,415.4	Linear feet. 45, 055.0 81, 419.0 109, 190.0 71, 439.0 59, 174.9 128, 760.6 72, 921.8 54, 313.4 59, 689.6

## TABLE No. 21.—Summary of gas mains laid to June 30, 1915, beginning July 1, 1906.

Size of main.	Washing- ton Gas Light Co.	George- town Gas Light Co.	Total.
1+inch.	Linear feet.	Linear feet.	Linear feet. 1.647.0
2-inch. 3-inch	6,044.5	1,311.0	7,355.5 5,798.2
4-inch. 6-inch.	189,962.5	31,805.0 53.342.4	221,767.5 276.316.5
8-inch 10-inch	12, 109. 4	19,517.0 4,107.0	31,626.4 4,107.0
12-inch. 16-inch.	2,868.0	35, 420. 0	115,340.5 2,868.0
20-inch	8, 269. 0 9, 571. 0		8, 269. 0 9, 571. 0
Total	539, 154. 2	145, 502. 4	684, 666. 6

## REPORT OF INSPECTOR OF BUILDINGS.

## Washington, August 13, 1915.

Sir: I submit herewith the annual report covering the transactions of the building division during the fiscal year ended June 30, 1915. No operations of the Federal Government were reported during the year.

## Statement of permits issued from July 1, 1914, to June 30, 1915.

	Num- ber.	Value.		Num- ber.	Value.
Brick:			Tile:		
Repairs	1,468	\$1,141,566	Dwellings	33	\$163,000
Dwellings	883	2,909,000	Garages	8	1,68
Stores and dwellings	12	77,860	Metal:		•
Stores	21	138,613	Sheds	63	37,17
Apartment houses	42	1,567,825	Garages	345	87,994
Garages	142	129,896	Frame:		.,
GaragesWarehouses	10	78, 100	Sheds	424	16, 417
Office buildings	6	596, 400	Repairs	576	115, 332
Store and office building	ĭ	40,000	Dwellings	239	707, 845
Stores and apartments	13	68,740	Stores		600
StablesStable and garage	6	9,900	Garages		7, 190
Stable and garage	ĭ	11,600	Stables.		265
Churches	6	141, 925	Churches	2	2, 150
Sheds	24	10,340	Office	1	2,500
Blacksmith shops		3, 250	Elevators	73	152,720
College	1 1	36,000	Motors.		82,921
Workshops	3	8, 750	Boilers	19	19, 891
Conservatory	1 1	22,000	Gas engines.	-61	1,500
Conservatory Theater (amusement hall)	1 1	2,900	Geedine engines	9 1	110
Printing house		14,000	Motor and machinery	1 1	15,000
Grottoes	2	12,000	Engines.	6	700
Hotel	4	17,000	Heating apparatus	91	450
Factory	1 1	37,000	meeting apparatus	*	500
Chapel	1 1	11,000 500	Total	4,854	0 575 057
Bank and office building.	i		A seem for see	161	8, 575, 067 12, 075
Substation	i	157,000	Awnings	101	
	1 1	1,000	Fire escapes	26	5, 200
Concrete:	ا ہا	0 900	Signs	760	7,600
Garages	8	2,300	0		0. 500. 000
Storeroom	1	150	Grand total	5,801	8,599,932

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### Comparative statement for the years 1914 and 1915.

	New buildings.	Repairs, etc.	Dwell- ings.	Apart- ments.	Business buildings.
1915. 1914.	1,486 1,496	3,368 4,019	1, 155 1, 161	42 34	289 301
Total	1 10	1 651	16	8	1 12

1 Decrease.

Valuation of building operations, including awnings, fire escapes, and signs: 1915	\$8,599,932 9,544,302
Decrease	944,370
Permits issued, including buildings, repairs, awnings, signs, motors, elevators, etc.: 1915. 1914	5,571 5,644
Decrease	<u> </u>
Projections beyond the building line, permits for	1,760

The following summary shows the distribution of improvements in the different sections of the District and the values of same:

	Buildings.	Repairs, etc.
Northeast. Southeast. Northwest. Southwest. County.	\$347, 427 192, 150 1, 778, 931 314, 467 4, 315, 896	\$114, 152 93, 278 1, 094, 376 51, 013 273, 367
Total	6, 948, 871 1, 626, 186 1 8, 575, 057	1,626,186

<sup>&</sup>lt;sup>1</sup> Does not include awnings, fire escapes, or signs, cost of which is estimated.

Grand total for buildings, repairs, etc., awnings, fire escapes, and signs, \$8,599,932.

Estimated number of buildings in the District of Columbia.

	Brick.	Frame.
1915, erected	1,243 158	306 58
Total	1,095 61,004	248 26,089
Total estimated number	62,099	26, 337

It will be noted from the foregoing tables that building construction has fallen off materially during the past year. The only type of building in which there has been an increase is in apartment houses.

The estimated value of building construction, including repairs, during the year was the smallest since the year 1902. It was nearly \$1,000,000 less than the previous year. This was a condition not peculiar to Washington, but one that occurred in all the principal cities of the Union.

It naturally followed that the fees collected by the office for permits for building construction were less than last year, but by reason of a change in the regulations promulgating fees not formerly collected for the inspection of elevators, theaters, and other places of amusement, the total fees collected were \$1,629.44 in excess of those collected by the office last year, and as the expenses were reduced to \$34,270.87, the net difference between receipts and expenses this year was \$7,635.82, as compared with the loss last year of \$9,588.41.

The estimate made last year that the additional fees ordered collected by the commissioners would amount to \$5,000 was correct, as \$4,759.75 on this account was actually collected and bills receivable for \$575 are due for elevator inspection. It is to be noted, however, that strenuous opposition has been made to these fees, and upon the refusal of individuals and corporations to pay them, a test suit has been brought in the municipal court, which resulted in a decision adverse to the District. The case has gone to a higher court on appeal.

The more important changes made in the building regulations during the past year were those making the open fence the standard party fence in lieu of the fermer closeboard type, and the new regulation providing for the construction of buildings of

The reports of the civil engineers and computers, the fire-escape inspector, the elevator inspectors, and the several assistant building inspectors showing the details of the work covered by the office are transmitted herewith.

Inspection of safety exits and appliances in event of fire was made by the fire-escape inspector of all the public schools in the District, and a report thereon submitted.

The two elevator inspectors by reason of installation of elevators in new buildings, and of the demand upon their time for inspection of passenger elevators in Federal buildings have fully reached their maximum capacity for thorough and careful inspection. It was necessary during the year to relieve them in the inspection of lifts in private residences to a yearly inspection, in lieu of a quarterly one as required for all other passenger elevators in the District of Columbia.

As reported to a previous board of commissioners, I am deeply impressed with the fact that the work accomplished by the employees of this division is not properly recompensed. The combination of responsibility, danger, and physical labor which these men bear, render their positions most arduous; and it is only with the hope of increases in compensation that it is possible to hold competent men in the more responsible positions. I can not too earnestly recommend that, as specifically enumerated in the "estimates," certain of the salaries in this office be increased.

MORRIS HACKER. Inspector of Buildings.

Capt. Roger G. Powell, Corps, Engineers, U.S. Army, Assistant to the Engineer Commissioner.

## COMPUTERS' REPORT.

Washington, September 7, 1915.

Sir: We submit herewith our annual report for the fiscal year ending June 30, 1915. The engineering work of the office has materially increased during the year because of the increased ratio of fireproof construction.

We have endeavored to cooperate with the structural engineers of the building departments of other cities, and also with the engineering department of the Fire Underwriters' Association, with a view of maintaining a high standard of fireproof construction.

An appropriation should be obtained to permit this office to be represented at the important tests of fireproof construction, which are held at different periods; also to give an opportunity to personally inspect the effects of large fires on this class of construction. The lack of such an appropriation causes Washington to be the only large city that was not represented at the investigation into the cause and effects of the Edison fire at Orange, N. J

The salaries in this branch of the office should be materially increased as they are out of proportion to the work performed. We are frequently called upon to check and revise elaborate plans, made by engineers receiving three times our salary.

Respectfully submitted.

T. L. Costigan, F. W. Hart, Engineers and Computers.

To the Inspector of Buildings.

## REPORT OF INSPECTOR OF FIRE ESCAPES.

Washington, August 11, 19	15.
SR: I have the honor to respectfully submit my annual report for the fiscal ending June 30, 1915, as follows:	
Visits to apartment houses	752 239
Visits to hotels	
Notices served	134 54
Notices complied but no fee paid	48 102
Active cases in filesPublic schools inspected	187 163
JAMES P. PARRY, Inspector of Fire Escap	es.
The Inspector of Buildings.	
REPORT OF INSPECTORS OF ELEVATORS.	
Washington, July 1, 19.	
Sin: I have the honor to herewith submit my annual report for the fiscal ended June 30, 1915:	year
Passenger elevators installed	15 16
Hand-power elevators installed	9
Miscellaneous inspections	
Condemnations on elevators	296 72
Condemnations on elevators for United States Government	47 24 3
W. I. Evans,	
To Inspector of Buildings.  Inspector of Elevato	78.
Washington, July 1, 19.	
SIR: I have the honor to submit my report for the fiscal year ending June 30, covering the duties assigned to me in the district north of Pennsylvania Average of Eleventh Street, and north of Massachusetts Avenue:	1915, nue,
Passenger elevators installed	16 1
Freight elevators installed	18 353
Fotal inspections	624
Inspections for United States Government	70 47 65
Respectfully submitted.	, 555
R. H. Bruce, Inspector of Elevato	78.

To Inspector of Buildings.

•	
Washington, D. C., September 20, 1915. Sir: We have the honor to submit herewith the report of the transactions of the board of examiners for elevator operators for the year ended June 30, 1915. A regular weekly meeting of the board has been held and has resulted in a satisfactory increase of efficiency in the elevator operators of the District.	he
Elevator operators examined and passed	28 50
Very respectfully,	
ROY E. HAYNES, Secretary, Board of Elevator Examiners. The Inspector of Buildings.	•
REPORTS OF THE ASSISTANT INSPECTORS OF BUILDINGS.	
Washington, <i>July 1</i> , 1915.	
Sir: In accordance with the following reports of the assistant inspectors for tyear ending June 30, 1915, a decrease of 2,502 inspections is shown in the total 63,166 against 65,668 the previous year. The average attained being 7,895 for tyear, or 22.1 inspections daily to the credit of each field inspector.  I can only reiterate the statements contained in previous reports by saying the the work in general has been well inspected throughout the year, and that the slig decrease shown is not due to any inactivity on the part of the men having char of the inspection work, but rather to the layout of building operations.  All matters with reference to condemnation of buildings and parts thereof habeen promptly acted upon and compliance made with the building regulations.	rge
J. Ww. Downing, Assistant Inspector of Buildings.	
To the Inspector of Buildings.	,
•	
Washington, July 1, 1915.	
Sir: I have the honor to submit herewith the statement of work performed accordance with my official duties for year ended June 30, 1915:	
Visits to new buildings.       7,0         Visits to old buildings.       3,7         Visits of miscellaneous character.       3	21
Total	57 72
Respectfully submitted.	-
A. K. Selden,	
To Inspector of Buildings.	
Washington, July 1, 1915.	
Sir: I have the honor to submit herewith the statement of work performed accordance with my official duties for year ended June 30, 1915:	
Visits to new buildings.       2,8         Visits to old buildings.       1,9         Visits of miscellaneous character.       4	85 27 90
Total	— 02 72
Respectfully submitted.	-
A. M. Proctor.	
A. M. PROCTOR,  Assistant Inspector of Buildings.	
To Inspector of Buildings.	

To Inspector of Buildings.

•	
	Washington, July 1, 1915.
Siz: I have the honor to submit herewisecordance with my official duties for year	th the statement of work performed in ended June 30, 1915:
Visits to new buildings	
Visits to old buildings	
Condemnation of buildings or parts thereof.	
Respectfully submitted.	9 G T
	S. G. HUNTT, Assistant Inspector of Buildings.
To Inspector of Buildings.	
C	Washington, July 1, 1915.
SIR: I have the honor to submit herewi accordance with my official duties for year e	ended June 30, 1915:
Visits to new buildings	
Visits to old buildings Visits of miscellaneous character	3,004
Total	
Cast-iron columns inspected	
Respectfully submitted.	
respectiony submitted.	F. J. Niedomanski,
<b>.</b> .	Assistant Inspector of Buildings.
To Inspector of Buildings.	
<del></del>	Washington, July 1, 1915.
Sir: I have the honor to submit herewiscordance with my official duties for year e	th the statement of work performed in
Visits to new buildings	4, 395
Visits to old buildings Visits of miscellaneous character	
(Total	
Buildings taken down	
Twenty-one days spent in measuring and	
widening and extension of streets, etc.  Respectfully submitted.	•
	Edward Kern,
To Inspector of Buildings.	Assistant Inspector of Buildings.
10 INSPECTOR OF DUILDINGS.	_
<del></del> -	Washington, July 1, 1915.
Sin: I have the honor to submit herewisecordance with my official duties for the ye	th the statement of work performed in
Visits to new buildings	
Visits to old buildings Visits of miscellaneous character	
Total	
Condemnation of buildings or parts thereof.	,100
Respectfully submitted.	F. C. C
	E. G. CURTIS, Assistant Inspector of Buildings.
M . T	around and power of manually a.

To Inspector of Buildings.

Washington, July	y 1, 1915.
Sir: I have the honor to submit herewith the statement of work pe accordance with my official duties for year ended June 30, 1915:	erformed in
Visits to new buildings. Visits to old buildings. Miscellaneous visits.	2, 437
Total  Police court cases.  Cast-iron columns inspected.  Condemnation of buildings or parts thereof	2
Respectfully submitted.	
A. S. J. ATKINSO Assistant Inspector of B	ON, Puildings
The Inspector of Buildings.	wastinge.
Washington, July	1 1915
Sir: I have the honor to submit herewith the statement of work pe accordance with my official duties for year ended June 30, 1915:	
Visits to new buildings	1,618
TotalCondemnation of buildings or parts thereof	5, 106
Respectfully submitted.	
F. B. HAMM	
The Inspector of Buildings.	
Assistant Inspector of B	
The Inspector of Buildings.	Buildings. ris Hacker.
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morninspector of buildings, District of Columbia, for the year ended June 30, 191	ris Hacker, l5, together
Assistant Inspector of B The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morinspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.	ris Hacker, 15, together 439
Assistant Inspector of B The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morninspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.	ris Hacker, 15, together 439 49 488
Assistant Inspector of B The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morinspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective setting.	ris Hacker, 15, together  439 488 5 18
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morinspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective setting.  Defective steam gauges.	ris Hacker, 15, together  439 488 5 18 20 16
Assistant Inspector of B The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morinspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective setting.	ris Hacker, 15, together 439 49 488 5 18 20 16
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morn inspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective stetam gauges.  Defective steam gauges.	ris Hacker, 15, together 439 488 5 18 20 16 708 6
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morninspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective setting.  Defective steam gauges.  Defective shell plates.  Total amount received for fees in inspection.	ris Hacker, 15, together 439 49 488 5 18 20 16 708 6
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morn inspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective steam gauges.  Defective steam gauges.  Defective tubes.  Defective shell plates.  Total amount received for fees in inspection.  Expenses in connection with inspection of boilers.  Balance.  Very respectfully,	ris Hacker, 15, together  439 488 5 18 20 16 708 6 \$2, 195. 00 305. 00 1, 890. 00
The Inspector of Buildings.  Report of the Inspector of Steam Boilers.  Sir: I have the honor to submit the following report through Mr. Morninspector of buildings, District of Columbia, for the year ended June 30, 191 with fees received and expenses incurred:  Boilers inspected and fees received.  Boilers inspected for District of Columbia, no fees.  Total.  Boilers condemned.  Cases of scale and deposit.  Defective setting.  Defective steam gauges.  Defective shell plates.  Total amount received for fees in inspection.  Expenses in connection with inspection of boilers.	ris Hacker, 15, together 439 488 5 18 20 16 708 6 305.00 1,890.00

The Inspector of Buildings.

### REPORT OF BOARD OF EXAMINERS OF STEAM ENGINEERS.

WASHINGTON, D. C., September 20, 1915.

Sig. We herewith submit to you the report of the board of examiners of steam engineers for the year ended June 30, 1915.

The following table shows the work as it progressed during each month:

	Meet-	A	pplicant	<b>3.</b>				Special	
•	ings held.	Re- ceived.	Ap- proved.	Incompetent.	First class.	Second class.	Third class.	hoist- ing.	Dupli- cate.
1914. July August September October November December	5 4 4 5 4 3	8 6 12 12 6 5	1 2 4 2	7 6 10 8 4 5	1	1 2	1 2		i
1915. January February March April May June	4 4 4 5 4	12 11 8 22 9 6	10 3 2 4 6	2 8 6 18 3 5	1 2 3	1 1	8 1 2 2 4 1	1	1
Total	50	117	23	82	7	6	19	1	2

In addition to examining applicants for steam-engineer license the board has also conducted the examination of applicants for automobile and motor-cycle operators, a full report of which is being submitted by the secretary of the automobile board. Our estimate of expenses for the year ending June 30, 1917, has been submitted to the secretary of the board of commissioners on the regular blank forms supplied for

that purpose.

E. F. VERMILLION, H. BOESCH, Secretary, JAS. T. FINK, Board of Examiners.

The Inspector of Buildings.

### REPORT OF THE INSPECTOR OF PLUMBING.

Washington, October 1, 1915.

SIR: I have the honor to submit the thirty-third annual report of the work performed by the division of pumbing inspection for the fiscal year ending June 30, 1915. The following table shows the work performed by the outside force of assistant inspectors:

Preliminary inspections.		7. 064
Cast iron somewit		
New	 	4, 098
Repairs	 	1,096
Terra-cotta sewers:		
New		
Repairs		
Main sewers tapped	 	. 1, 380
Rough work in—		
New houses		
Old houses	 	
Water services		
Notices served		
Peppermint tests and final inspections	 	3, 142
Work not ready for inspection when ordered	 <b>.</b>	. 990
Changes ordered in work incorrectly installed		
Special inspections of municipal work		
Gas		
Complaints	 	7, 100
Total		33 489

To the above are to be added inspections by the head of the office of a general nature, 1,921; special inspections on construction work for the District, 212; and by the principal assistant inspector of plumbing, consisting of inspections on complaints relative to illegal plumbing, examinations of materials, visits to the homes of witnesses, and general police work which does not appear elsewhere, 1,856. The total of these inspections should be added to the above total, which gives a general total of 37,478 inspections made by the entire force. While the total number of inspections remains practically the same as last year, on account of the extension of public sewers into outlying districts, the amount of ground to be covered by the inspectors in making the same number of inspections has been greatly increased and therefore the total amount of work done is increasing.

The following table shows the total inspections made each year since the fiscal year of 1895:

1894-95	5,708	1905–6	30, 185
1895–96	8, 677	1906-7	32, 190
1896-97	14, 112	1907-8	29, 547
		1908-9	
1898-99		1909–10	
		1910-11	
		1911–12	
1901-2		1912–13	
1902-3		1913–14	
		1914–15	
1904–5			01, 110

It is estimated that the total cost of new plumbing work installed during the year was \$572,260, and the estimate of value of repairs and remodeling work is \$228,980, both of which were less than for last year

both of which were less than for last year.

The total number of inspections made by the outdoor force (33,489), divided by the total number of days in the field, gives an average of 16 inspections per day per man, which is, considering the increase in area of the sewer-connected portions of the District, an exceptionally good showing. The greatest number of inspections made by any man in one day was 65.

#### PER DIEM EMPLOYEES.

With the exception of the men employed as temporary assistant inspectors, etc., under the special appropriation for that purpose, there were no other per diem employees in this office during the past year.

### POLICE COURT CASES.

The total number of warrants obtained was 33, divided as follows:	
Violations of the plumbing regulations.  Excavations on public space without permission.  Work done by unlicensed plumbers.  Hiring unlicensed plumber.	- 5
Total	33
These cases were disposed of as follows:	
Nol prossed on compliance with commissioners' order	
Personal bonds to comply with regulations.  Not apprehended  Dismissed.	2
Total —	22

#### OFFICE WORK.

The following table gives the amount of office work performed during the past year and a comparison with that of the five preceding years:

	1910	1911	1912	1913	1914	1915
Official letters. Unofficial letters. Indorsements.	7,204	2,542 5,240 2,905	2,340 4,973 2,204	1,915 4,138 2,118	1, 138 3, 679 1, 177	877 3,957 1,180
Reports of inspectors		9,641	9,659 1,404	9,015 1,673	10, 262 1, 771	9, 715 1, <b>33</b> 2
Plans prepared	26 30	30 45	33 41	26 34	18 50	30
Plans and specifications revised  Examination of plans for new buildings.	2, 421	2,273	3,256	1 1,857	1,518	1,486
Examination of repair applications.  Postage stamps used:  2-cent	,	2,907	2, 263 3, 825	3,138	2,628 3,952	3, 347 2, 519
i-cent Postal cards used	499	4,300 2,297 591	2,345 89	1, 148 56	5, 208 751	4, 368 577
Car tickets used						1,781

#### COMPULSORY DRAINAGE.

During the last year 28 cases were recommended for compulsory sewer and water connections by the health department and other branches of the District government, including three nuisance cases. Notices were served in all cases referred to this office with the exception of a very small number where legal service could not be made. Some of these notices were complied with by owners or agents and in one case two buildings were razed by the owners. There was no work under this appropriation during the past year and consequently no assessment made therefor.

### PUBLIC-CONVENIENCE STATIONS.

There were three public-convenience stations in operation during the year, and, with the exception of a portion of the last month in the fiscal year when the hours of service had to be curtailed on account of shortage of funds, the stations were open from 6 a. m. until midnight, the shifts of attendants working nine hours per day each.

The total attendance during the year at the station at Seventh Street and Pennsylvania Avenue was 1,383,416; at the station at Thirteenth-and-a-half Street and Pennsylvania Avenue, 505,325; and at the station at Ninth and K Streets, 803,462, making a total of 2,692,203 persons using these stations. The cash receipts from the 5-cent pay compartments and other small sources of income amounted to \$1,951.19, \$643.49, and \$522.71 for the above locations, being a total of \$3,117.39. The total woman patronage was 12 per cent of the total and they contributed 10 per cent of the receipts.

Funds were obtained for the construction of one new station at Fifteenth and H Streets NE., which station has not yet, however, been completed. The small amount of money granted for this station will, however, operate against the construction of a station containing facilities at all comparable to the other stations now in service, but it is believed that a perfectly plain structure of about one-third of the accommodations given by the other stations can be constructed within the available sum.

This office has for several years recommended stations at the most congested centers, notably at Ninth between F and G Streets NW.; Fifteenth Street and New York Avenue NW.; Wisconsin Avenue and M Street NW.; and near the Peace Monument, and it is recommended that every effort be made to obtain appropriations for them. The four park lodges and the Red Cross station on the Speedway, each of which have small rooms with toilet facilities, have been much used as has also the new wholesale market general toilet rooms which partake of the nature of public-convenience stations.

In conclusion, I beg to commend to your attention the most careful and conscientious work of the inspectors and office employees of this division.

A. R. McGonegal, Inspector of Plumbing.

The Inspector of Buildings.

### REPORT OF THE PLUMBING BOARD.

WASHINGTON, October 1, 1915.

SIR: I have the honor to submit the following report of the work of the plumbing

board for the past fiscal year.

There were held during the year 36 regular and special sessions and consultations for the examination and rating of candidates as master plumbers and gas fitters.

The total number examined was 46.

The number of original candidates examined for licensing as master plumbers and gas fitters was 29, of whom 8 passed and 21 failed.

Of those who had been previously examined for licensing as master plumbers and gas fitters, 5 passed and 12 failed.

No candidates were examined for licensing as master gas fitter.

Examination of candidates appearing before the board two or more times resulted as follows:

Examination.	Passed.	Failed.
econd. 'hird		
nru ourth	1	
ixth linth		
enth		

PETER C. SCHAEFER, President. RICHARD A. O'BRIEN. Secretary.

To the Inspector of Plumbing.

## REPORT OF THE MUNICIPAL ARCHITECT.

WASHINGTON, September 27, 1915.

SIR: I have the honor to forward herewith the sixth annual report of the office of the municipal architect for the fiscal year ended June 30, 1915.

During the year 12 buildings were under construction, as follows:

Building.	Appropriation available.	Cost.	Completed.
New Central High School, No. 173 Eleventh and Thirteenth Streets, Florida Avenue and Clifton Street, NW Excavating	June 26, 1912 July 1, 1913 July 21, 1914	\$981,450.00 49,000.00	Apr. 15,1916 Sept. 17,1914
New M Street High School, No. 174 First Street between N and O Streets NW	June 26, 1912 July 1, 1913 July 21, 1914	261, 082. 00	July 13, 1916
Excavating and substructure.  Pile driving.  Heating and ventilating.  Plumbing  Electrical work.  Radial by ick chimney.		13, 160. 00 7, 350, 00	July 15, 1915 May 1, 1915
Radial bitch chimney Farmers' Produce Market, shelters, yard and weighmasters' offices, Little B, Tenth and Twellth Streets NW Curtains in tollets. Electrical system.		14,845.00 20.00 650.00	Feb. 4, 1915
Repair shop, for water department, south side of Bryant Street NW., west of Second Street. Western High School, No. 117 Thirty-fifth and R Streets NW.: Reconstruction. Steel and Iron work, concrete footings, floor slabs and roof,	July 21, 1914 July 29, 1914	18, 100. 00	July 17, 1915 Sept. 18, 1915
fireproof partitions, and repairing brick walls and par- titions. Heating Electrical work Mill work, carpenter work, etc. Plumbing Plastering Painting.		17, 623. 00 2, 940. 00 26, 565. 00 11, 320. 00 8, 900. 00	May 21, 1915

Building.	Appropriation available.	Cost.	Completed.
Park View School, No. 175 west side of Warder Street NW., between Newton and Otis Streets	Jaly 21, 1914	5,770.00	June 7, 1916
Electrical work.  Residence for use of superintendent of Tuberculosis Hospital, Thirteenth and Upshur Streets NW.  Electric conduits and fittings.  Police station No. 3, K Street NW., between Twentieth and	July 21, 1914	1, 170. 00 5, 499. 00 102. 35	Sept. 1, 1915 Do.
Twenty-first Streets: Reconstruction of cells, locking devices, and cell corridors.  Georgetown Playground, Thirty-third Street and Volta Place NW.: Swimming pool, showerbaths, toilets, lockers, screens,	July 21, 1914	4, 378. 00	Do.
etc.  Howard Playground, Fifth and W Streets NW.:  Swimming pool, showerbaths, toilet, lockers, screens, etc  Completion of plumbing.	Mar. 3, 1915 July 21, 1914	4, 043. 00 2, 793. 00 485. 63	Sept. 27, 1915 Do.
Rosedale Playground, Eighteenth and Gales Streets NF.: Swimming pool, showerbaths, toilets, lockers, screens, etc Completion of plumbing Zoological Park, animal hospital	July 21, 1914 July 21, 1914	2, 043. 00 485. 63 6, 000. 00	Do. Nov. 1,1915

#### PLANS.

The plans for all buildings under the 1915 appropriation were completed before the end of the fiscal year, and all but the two engine houses were under construction. One engine house has been advertised and the other will be advertised about Sep-

tember 30, 1915.

The plans for two buildings in the 1916 appropriation act have also been completed, namely, the Powell School addition and the remodeling of the Seventh Street convenience station. This will leave but two other buildings, the convenience station at Fifteenth and H Streets NE. and the fish and produce market at Twelfth and Water Streets SW. to be designed during the fiscal year 1916. If work is authorized on the new Eastern High School and when a site is obtained, plans may be started for this work. Plans for buildings at the Home of the Aged, at Plue Plains, and for buildings at the workhouse and reformatory, at Occoquon, have been passed upon by this office, though the work at these institutions is carried on by the superintendents through special employees not connected with this office. On August 1, 1911, all construction work at the workhouse, which had been planned by the municipal architect, was completed and at the request of the superintendent of the workhouse the inspector from this office was withdrawn. Within the past month the superintendent of construction from this office has been directed by the assistant to the engineer commissioner to make periodical inspections of the work and special reports will be submitted after each inspection. Besides the buildings erected for the District, plans and specifications were prepared for buildings at the National Training School for Girls, on the Conduit Road, and for the animal hospital, at the National Zoological Park.

The plans for the buildings were prepared after consultation with the heads of the The plans for the buildings were prepared after consultation with the heads of the departments interested, and the school plans were prepared after written suggestions from the principals and special teachers, and were examined in course of preparation by the president of the board of education and the superintendent of schools, whose suggestions were adopted as nearly as possible.

The preliminary plans for the Municipal Hospital were submitted to the Commission of Fine Arts, and were favorably considered. Later they were approved by

the engineer commissioner, and the working drawings are now being made and will

probably be completed in January next.

# Specifications and proposals were prepared for the following improvements:

	Work.	Date of advertisement.
Farmers' Produce Market	toilets, etc.	July 9, 1914
Seaton School	Retubing two boilers	Do.
Emery School	do	Do.
Henry School	Retubing boiler	Do.
Sumner School	do	Do. July 15, 191
	New boiler	July 22, 1914
Thompson School	Wire window guards.  Moved from Weightman site to Powell site  Moved from Congress Heights site to Petworth site	July —, 1914 July 27, 1914
Portable school	Moved from Congress Heights site to Petworth site	Do. 1914
Brightwood School	Retubing boiler	July 30, 1914
Franklin School	Additions to heating system	Aug. 5, 191 Aug. 12, 191
Bradley School	Slate steps Retubing boiler and reinforcing manhole	Aug. 12, 1914
Syphax School District of Columbia Jail	Installing piping system between new boiler and outside	Aug. 14, 1914 Aug. 18, 1914
DESCRIPTION SELL	buildings.	12 tag. 10, 101
District of Columbia Public Library.	Installing breeching and piping for new boiler	Aug. 24, 191
Smallpox Hospital	Retubing boiler	Aug. 27, 1914
Bryan School	trances	Aug. 29, 191
•	Moved from Garnet site to Armstrong Manual Training School site.	Sept. 1,1914
Bryan School	Cast-iron lintels over windows and steel lintels over entrances.	Sept. 22, 1914
Engine house No. 16	Installing boiler, heaters, and pressure fan	Sept. 23, 1914
Police court	Additions to electric lighting system	Oct. 7, 1914 Oct. 10, 1914
Police station No. 2	Electric light wiring system	
Engine house No. 11	Electric light wiring system  Extension of lighting system  Electric lighting system  Reconstruction, steel and iron work	Oct. 20, 1914
Western High School	Reconstruction, steel and iron work	Oct. 23, 1914
Do	Kamovai oi aquidment	Oct. 26, 1914
Morgan School New M Street High School	New roof	Oct. 29, 1914
Western High School	Remodeling of heating plant.	Nov. 7, 1914
Engine house No. 18	Excavation, foundations, and substructure	Oct. 20, 1914 Oct. 23, 1914 Oct. 26, 1914 Oct. 29, 1914 Oct. 31, 1914 Nov. 7, 1914 Nov. 17, 1914
Repair shop for water depart-	Construction	Nov. 18, 1914
ment. J. F. Cook School	Raying building to east of school	Nov. 23, 1914
Bryan School	Razing building to east of school	Dec, 1914
Engine house No. 24	Repair and extension of electric-light equipment.  Paper hanging.  Remodeling piping system.  Removal of frame buildings adjoining school and grading.  Curtains in tollets.  Electric lighting system.	Dec. 4, 1914 Dec. 14, 1914 Dec. 19, 1914 Jan 15, 1915 Feb. —, 1915 Feb. 3, 1915
Industrial Home School	Paper hanging.	Dec. 14, 1914
Lenox School	Remodeling piping system	Dec. 19, 1914
Farmers' Produce Market	Curtains in toilets.	Feb 1915
Engine house No. 9	Electric lighting system	Feb. 3, 1915
Engine house No. 10	do	D0.
New M Street High School	Pile driving for foundation	Do. Feb 5 1915
Smallwood School	Electric lighting system	Feb. 5, 1915 Feb. 20, 1915
Dα	Distant and beating decises	
177 A	Electric power and nearing devices	Do.
Western High School	Heating and ventilating system	Do. Feb. 24, 1915
Western High School Kenilworth School	Electric lighting systemdododoDile driving for foundation	Do. Feb. 24, 1915
Georgetown, Rosedale, and Howard Playgrounds.	Swimming pools	Do. Feb. 24, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court	Swimming pools.  Plumbing installation.	Feb. 24, 1915 Mar. 3, 1915 Mar. 22, 1915 Do.
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School.	Swimming pools.  Plumbing installation.	Do. Feb. 24, 1915 Mar. 3, 1915 Mar. 22, 1915 Do. Mar. 29, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School.	Swimming pools  Plumbing installation  Construction of building  Construction of residence for superintendent	Do. Feb. 24, 1915 Mar. 3, 1915 Mar. 22, 1915 Do. Mar. 29, 1915 Do.
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School.	Swimming pools.  Plumbing installation.	Do. Feb. 24, 1915 Mar. 3, 1915 Mar. 22, 1915 Do. Mar. 29, 1915 Do.
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School.	Plumbing pools  Plumbing installation Construction of building Construction of residence for superintendent Reconstruction of cells, locking devices, and cell corridors Swimming pools	Do. 1915 Mar. 3, 1915 Mar. 22, 1915 Do. Mar. 29, 1915 Do. Apr. 5, 1915 Apr. 22, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court Park View School. Tuberculosis Hospital Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School	Plumbing pools  Plumbing installation Construction of building Construction of residence for superintendent Reconstruction of cells, locking devices, and cell corridors Swimming pools	Do. 1915 Mar. 3, 1915 Mar. 22, 1915 Do. Mar. 29, 1915 Do. Apr. 5, 1915 Apr. 22, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court Park View School. Tuberculosis Hospital Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School	Plumbing installation Construction of building Construction of residence for superintendent Reconstruction of cells, locking devices, and cell corridors Swimming pools Reconstruction, electrical work Reconstruction, carpenter work, mill work, etc.	Do. 1915 Mar. 3, 1915 Mar. 22, 1915 Do. 1915 Do. Apr. 5, 1915 Apr. 22, 1915 May 5, 1915 Do.
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16 Engine house No. 6.	Plumbing installation. Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools. Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch.	Do. Har. 24, 1915 Mar. 3, 1916 Mar. 22, 1915 Do. Mar. 29, 1915 Apr. 5, 1915 Apr. 22, 1915 May 5, 1915 Do. May 18, 1915 May 19, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculesis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16 Engine house No. 6.	Plumbing installation Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system. Reconstruction, painting, plastering, and plumbing.	Pob. 24, 1915 Mar. 3, 1916 Mar. 22, 1915 Do. Mar. 29, 1915 Apr. 5, 1915 Apr. 22, 1916 May 18, 1915 May 19, 1915 May 2, 1916 May 2, 1916 May 22, 1916
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Police substation, Tenleytown.	Plumbing installation. Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools.  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system Reconstruction, painting, plastering, and plumbing.	Do. Feb. 24, 1915 Mar. 3, 1916 Mar. 22, 1915 Do. Mar. 29, 1915 Do. Apr. 5, 1915 Apr. 22, 1918 May 5, 1915 May 18, 1915 May 19, 1915 May 22, 1918 May 22, 1918 May 24, 1915
Georgetown, Rosedale, and Howard Playgrounds. Iuvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Police substation, Tenleytown.	Plumbing installation. Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools.  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system Reconstruction, painting, plastering, and plumbing.	Pob. 24, 1915 Mar. 3, 1916 Mar. 22, 1915 Do. Mar. 29, 1915 Apr. 5, 1915 Apr. 22, 1916 May 18, 1915 May 19, 1915 May 2, 1916 May 2, 1916 May 22, 1916
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Police substation, Tenleytown. New M Street High School. National Training School for	Plumbing installation. Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools.  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system Reconstruction, painting, plastering, and plumbing.	Do. Feb. 24, 1915 Mar. 3, 1916 Mar. 22, 1915 Do. Mar. 29, 1915 Do. Apr. 5, 1915 Apr. 22, 1918 May 5, 1915 May 18, 1915 May 19, 1915 May 22, 1918 May 22, 1918 May 24, 1915
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Police substation, Tenleytown. New M Street High School. National Training School for Girls.	Plumbing installation Construction of building. Construction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system. Reconstruction, painting, plastering, and plumbing. Electric lighting. Construction superstructure, heating and ventilating, plumbing, electric work, and radial brick stack. Alterations and additions to barn and storehouse.	Do. Har. 3, 1916 Mar. 3, 1916 Mar. 22, 1915 Do. Apr. 5, 1915 Apr. 22, 1915 May 18, 1915 May 19, 1915 May 24, 1915 June 10, 1915 June 17, 1815
Georgetown, Rosedale, and Howard Playgrounds. Howard Playgrounds. Howard Playgrounds. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Western High School. Police substation, Tenleytown. New M Street High School for Girls. National Training School for Girls. Farmers' Produce Market	Plumbing installation Construction of building. Construction of residence for superintendent. Reconstruction of reells, locking devices, and cell corridors. Swimming pools  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system. Reconstruction, painting, plastering, and plumbing. Electric lighting. Construction superstructure, heating and ventilating, plumbing, electric work, and radial brick stack. Alterations and additions to barn and storehouse.  Electric lighting system and paying.	Do. 100. 100. 100. 100. 100. 100. 100. 10
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School Do Engine house No. 16. Engine house No. 6. Western High School Police substation, Tenleytown. New M Street High School National Training School for Girls. Farmers' Produce Market Zoological Park.	Plumbing installation Construction of building. Construction of residence for superintendent. Reconstruction of reells, locking devices, and cell corridors. Swimming pools  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system. Reconstruction, painting, plastering, and plumbing. Electric lighting. Construction superstructure, heating and ventilating, plumbing, electric work, and radial brick stack. Alterations and additions to barn and storehouse.  Electric lighting system and paying.	Do. Har. 3, 1916 Mar. 3, 1916 Mar. 22, 1915 Do. Apr. 5, 1915 Apr. 22, 1915 May 18, 1915 May 19, 1915 May 24, 1915 June 10, 1915 June 17, 1815
Georgetown, Rosedale, and Howard Playgrounds. Juvenile court. Park View School. Tuberculosis Hospital. Police station No. 3. Georgetown, Rosedale, and Howard Playgrounds. Western High School. Do. Engine house No. 16. Engine house No. 6. Western High School. Police substation, Tenleytown. New M Street High School. National Training School for Girls. Farmers' Produce Market. Zoological Park.	Plumbing installation Construction of building. Construction of residence for superintendent. Reconstruction of residence for superintendent. Reconstruction of cells, locking devices, and cell corridors. Swimming pools  Reconstruction, electrical work. Reconstruction, carpenter work, mill work, etc. Additional electric lighting and change of switch. Electric lighting system. Reconstruction, painting, plastering, and plumbing. Electric lighting. Construction superstructure, heating and ventilating, plumbing, electric work, and radial brick stack. Alterations and additions to barn and storehouse.  Electric lighting system and paving. Hospital for animals. Completion of plumbing in swimming pools.	Do. 194, 1915 Mar. 3, 1916 Mar. 3, 1916 Mar. 22, 1915 Do. 195, 1915 Apr. 22, 1915 May 18, 1915 May 18, 1915 May 22, 1915 May 24, 1915 May 24, 1915 May 17, 1815 June 17, 1815 June 19, 1915 June 23, 1915

#### CUBIC COST OF BUILDINGS.

In annual reports of previous years the cubic cost of District buildings has been given since 1897. These tables show the increase in cost since 1899, which now amounts to an increase over the cost at that date of about 40 per cent. The following table shows the cubic cost of buildings erected during the fiscal year.

table shows the cubic cost of buildings erected during the fiscal year.

Comparison of cost between the District buildings and similar buildings in other cities will show that with the exception of Cleveland, Ohio, the buildings and repairs

cost less in Washington than any other city.

Building, name, number, description, and location.	Cost.	Cubic con- tents.	Cost per cubic foot.	Heating plan.
New Central High School, No. 173, Eleventh and Thirteenth Streets, Florida Avenue and	\$1,012,450	Feet. 5, 712, 462	Cents. \$0.1772	Fan system, steam.
Clifton Streets NW (exclusive of stadium). New M Street High School, No. 174, First Street, between N and O Streets NW.	415, 529	2, 913, 295	. 1426	Do.
Park View School, No. 175, Warder Street, between Newton and Otis Streets NW.	126, 740	829, 417	.1528	Do.
Residence for use of superintendent of Tuber- culosis Hospital, Thirteenth and Upshur Streets NW.	5, 499	36, 651	.15	Steam.
Animal hospital, at National Zoological Park Repair shop for water department, south side of Bryant Street NW., west of Second Street.	6,000 18,100	40, 000 158, 951	.15 .114	Do. Do.

#### ORGANIZATION AND EXPENSES OF ADMINISTRATION.

In 1898 the volume of business in the inspector of buildings' office was indicated by the construction of about \$4,000,000 worth of private buildings, and at that time the inspector of buildings, who was then an architect, was able, by overtime work, to look after the inspection of private buildings and also to design the public buildings for the District. But in 1908 the volume of business in the inspector of buildings' office had increased from \$4,000,000 to \$14,000,000. It then became impossible for one man to properly perform both duties, and in 1908, in the hearing before the House Committee on Appropriations for the District (Feb. 18, 1908), the commissioners explained the situation and requested that the office of municipal architect be created and separated from the inspector of buildings' office, and on January 25, 1909, the commissioners explained to the Senate Committee on Appropriations for the District the importance of the change in organization of the office. Therefore in the act approved March 3, 1909, making provision for the expenses of the District of Columbia, Congress provided for "municipal architect, whose duty it shall be to prepare and supervise the plans for, and superintend the construction of, all municipal buildings, and the repair and improvement of all buildings belonging to the District of Columbia, under the direction of the engineer commissioner of the District of Columbia \* \* \* and all laws or parts of laws placing such duties upon the inspector of buildings of the District of Columbia are hereby repealed."

At the time of the separation of the duties of the municipal architect and the inspector of buildings, in 1909, the latter office had 21 men, whose annual salaries, including temporary inspectors, totaled \$30,930. After the separation the inspector of buildings' office had 23 men, at total salary of \$32,130. The following fiscal year, 1911, the inspector of buildings' office had 22, at the total salary of \$31,530, and the municipal architect started with a small force of 3 men, including the municipal

architect, at the total salary of \$6,500.

Therefore, after the separation of the duties, the municipal architect took fully one-half of the work with a force only one-seventh of the force left in the building inspector's office, and without any clerical assistance whatever, although the type-writing work in the municipal architect's office, including about 60 specifications and proposal forms a year and the daily and weekly reports from the buildings under construction and correspondence with contractors, material men, and officials interested, is equivalent to the clerical work done in the other office. It is therefore quite clear that the municipal architect started in 1910 with practically not even the nucleus of an office force. This condition was relieved to some extent by the ruling of the Comptroller of the Treasury to the effect that the municipal architect was authorized to put out the plans to architects, to employ per diem services of draftsmen and copyists to assist in the work and that the municipal architect was not required to actually prepare all plans and specifications, as his duties are supervisory, and that if the plans are prepared under his supervision by outside architects it will meet

the requirements of the law. As we had over 20 buildings to design the first yeae and a force of three men, it was obvious that in order to get the work out in a reasonable time some of it must be given to outside architects. In this connection, I would invite attention to the remarks of former Engineer Commissioner Morrow, in the hearings before the subcommittee of Appropriations Committee of the House, February 18, 1908, and December 12, 1908, and to the remarks of Representative Vreeland on this subject:

"If one architect was employed to do all this work, he would have to have an office force ready to take care of the maximum amount of work, or else the work would have to be put outside of his office. He could not be expected to call in men competent to assist him in his department at any time he wanted them, and hence he would have to employ them and keep them on hand ready to meet the maximum

amount of work."

It would seem that under the impression that the insufficient force might be increased by per diem employees, the permanent office force has not been adequately provided for. Since the origin of the office in 1909, with three men, including the municipal architect, only two men have been added to the office force and one for supervision of the construction work on the outside. When we take into consideration that the new building work amounts to about \$1,000,000 a year, the inadequacy of this force is apparent, and only by the greatest individual efforts can such a volume of work be carried on in anything like a creditable manner and instead of exerting a "supervisory" control over the work, the municipal architect must actually perform a very large share of its details. The inspector of buildings has five clerks, while the municipal architect has none. The total annual salaries in the municipal architect's office is \$12,000, while in the other case it is \$33,190.

I have been very moderate in requests for additional help, but I have repeatedly called attention to the lack of clerical assistance which imposes an unreasonable amount of such work on the technical employees and gives the impression that the routine

work is not satisfactorily performed.

I most earnestly appeal for favorable consideration of the estimates for additional of the estimates of the solution and invite attention to the following tables, showing that the salaries of the office force amount to less than 1 per cent of the cost of the District buildings under construction for the past year. If this work was done by outside architects, the commissions, at the schedule rates, would amount to \$53,343.04, or \$41,343 more than it now costs the District, so that even if the present office force were doubled, the District would get much better and prompter service and still save \$29,343.

## Cost of services for year 1914-15.

All the inspectors employed on the construction of buildings cost \$7 Office force on per diem roll cost 7 Office force on annual roll cost 12	342 13
Total cost of service for year	219.00
The annual permanent office force cost \$12,000, and the District building construction this past year cost \$1,333,576; therefore the percentage of cost varieties in the percentage of cost varieties of 1 per cent.	
Cost of buildings for fiscal year.	
1911	, 919. 00
Total	, 336. 00 , 867. 20
Personal expenses, including annual roll, superintendence, inspection, copyists, per diem draftsmen.	and all
1911	420. 00 186. 00
	970. 00 942. 30

27, 219.00

On the basis of the average annual expense, the office, including all per diem pay, would cost only 31 per cent on the average annual cost of buildings for the five years

since the office was organized.

Last year the cost of buildings under construction was \$1,333,576, and the total office expense, including the annual roll, and the superintendent and insepctors on the outside and all per diem employees, was \$27,219, or the very low cost of 0.0204 per cent on the cost of the buildings under construction.

### ORGANIZATION OF OFFICE.

With such a small force there is very little chance for systematic organization. The work of the office is in three divisions: (1) Architectural design and office work; (2) construction of new buildings; (3) repair and improvement of the older buildings. The first division is in charge of the chief draftsman, who is an architect of long experience and a civil engineer with a practice extending over 25 years. He was formerly employed as a civil engineer and computer in the inspector of buildings' office. This division has also a heating, ventilating, and sanitary engineer, who has special charge of this very important branch of the schoolhouse work. Due to his designs and improvements in old plants about \$12,000 were saved in the fuel expenditures in 1914, and I have every reason to believe that the figures for the fiscal year 1915 will show a greater saving when they are compiled in the auditor's office. A table has been prepared showing the amount of fuel used in each school building and the cost thereof.

Attention is invited to the fact that the management of these heating plants after they have been designed by this engineer is turned over to other departments. I believe that much better results might be obtained if this office had some control over the plants after they are in operation. It has been suggested that a fourth division might be added to the office to include the physical equipment of the buildings and to look after the management of the plants. With the small force previously referred to, the best results could not be obtained, but if sufficient help is afforded, there can be no doubt as to the economy and improvement in this branch of the work. In this connection, I would invite attention to the report of the subcommittee of the District committee on the purchasing methods of the District, 1912, sixty-second Congress, third session, pages 7 and 8, and especially to the reference to the design of the heating apparatus by the heating, ventilating, and sanitary engineer, under "Notes on findings and recommendation," page 10. At the present time the equipment for the new Central High School is under consideration and the furniture and apparatus will be purchased through the regular channels and under the supervision of this office. The same method is proposed as to the new M Street High School, No. 174, and while this adds a very considerable amount of work to the insufficient force, it is a most rational and businesslike method and in line with the practice in other large and progressive cities, where a school architect is employed, such as 8t. Louis, Cleveland, Boston, New York, etc. Such work would come under a fourth division of this office, if provided with the assistants to properly handle it.

The second division of the office is the construction of new buildings. This work

The second division of the office is the construction of new buildings. This work is under the immediate charge of the superintendent of construction, a medal graduate of the school of architecture of Columbian University, and formerly employed for many years in the inspector of buildings' office. It is the duty of this man to see that the plans and specifications are strictly carried out as they are issued from the architectural division of the office, a duty which he performs most carefully and unswervingly to the discomfiture of some of the contractors who have shown a tendency to slight the work. This is a very trying position and one not calculated to increase the popularity of the incumbent. The superintendent of construction is in charge of the local inspectors on each building, and on the larger buildings two or more inspectors are employed, while on some of the smaller buildings one man may look after several. These inspectors report daily through or under the directions of the superintendent of construction, and all matters or questions of construction are settled by him. In the event of a controversy or complaint by the contractor, the matter is brought to the municipal architect and finally to the engineer commissioner, if requested by the contractor. Under the circumstances, I am assured that the contract requirements

will be complied with in every case.

The third division of the office is the repair and improvement of the older buildings. This branch is under the charge of the superintendent of repairs, a thoroughly practical mechanic of more than 20 years' experience. He has an assistant superintendent of repairs, whose duties are particularly concerned with the office work at the repair shop. This man receives but \$1,200 a year, the same as the mechanics under him.

This salary should be raised to attract a man of suitable qualifications and broad expe-

rience in business management and care of property and materials.

The superintendent's duties require him to make frequent inspections of the buildings under repair, and his assistant should direct the shop work and look after the care and distribution of the materials. This office was the first in the District to start a property account and inaugurate a system for distribution of supplies to the various buildings as the work progressed. I have endeavored for several years to rearrange the shop for a more systematic and convenient method of storage, but this work can only be done by per diem employees, as the small permanent force is occupied constantly in other work. If per diem men are employed on the work it results in a serious drain on the limited repair funds and finally shows in the curtailment of the actual repairs on the buildings. In past years we have been directed by the engineer commissioner to expend such funds for no other services than mechanics' and laborers' wages and the materials and expenses incidental to the actual repairs. At certain wages and the materials and expenses increased to the very shop and there should be at least two well-paid men employed to look after it and keep up the stock accounts every day. This repair work is growing rapidly. The repair shop about 10 years ago had about 100 schools and 50 other buildings to look after, while to-day we have 160 schools and about 100 other buildings to keep in repair. The superintendent of repairs has seven mechanics under him whose duty it is to visit over 250 buildings and make estimates of the necessary repairs and the amount of materials required for each building, and then to direct the other mechanics employed in making such repairs. In recent years more and more work which was formerly done by contractors has been done by the mechanics employed in the repair shop, thus saving the large profits on such work as plumbing, sheet metal work, blacksmithing, and machine work, etc. A machine shop has been placed in the repair shop and partly equipped with discarded machines from other branches of the District service.

Plans have been made for structural changes at the shop to better utilize the space and afford safer and more convenient arrangement of the materials. This will require an appropriation, and I trust it will be favorably considered. The balance of the force at the shop consists of two clerks, a copyist, and a driver. The time of these clerks is thoroughly taken up with the keeping of the time of from 100 to 300 mechanics, the preparation of numerous requisitions for materials, the keeping of cost accounts on each and every building, the preparation of pay rolls, the frequent reports on completed work and the routine process. pleted work, and the routine reports on referred papers and the correspondence of the shop. A committee, appointed by the engineer commissioner in January, 1909, reported in House Document No. 1346, Sixtieth Congress, second session, page 21:

"As the superintendent of repairs is required not only to look after the repairs of

schools, but of engine houses, police stations, market houses, hospitals, and many other municipal buildings, it is evident that he can not give these repairs the personal attention they should receive; so the committee recommends that he be furnished with at least one assistant superintendent and that one of his duties shall be

to inspect and report on all repairs immediately upon completion.

This recommendation is important and the services of an assistant is absolutely necessary in order that the superintendent of repairs may give the work personal attention before certifying to the vouchers and pay rolls. And this assistant should be experienced in the building business and employed at a salary sufficient to attract

the proper man.

The salaries of the entire force at the repair shop amount to \$14,350, a very modest sum when it is realized that this force looks after the repairs and improvements of about \$16,000,000 worth of District property. The schools alone have nearly \$15,000,000 invested in buildings, grounds, and plants, and I would urge the necesity of a more liberal appropriation for repairs. At the present time the funds amount to less than 1 per cent of the value of the property, and when the hard usage of such buildings is taken into consideration the funds are not half sufficient, and consequently the buildings can not be properly kept up for lack of funds. This results in unfair criticism of the superintendent of repairs

I would invite attention to the Annual Report of the Engineer Department, District . of Columbia, for the year 1913, page 208, which gives in detail a description of the organization of the repair shop and the methods of administration, with the safeguards as to materials and timekeeping of the mechanics employed in repair work.

I submit herewith a report from the superintendent of repairs showing the expenditures on each and every building for the past year and items of labor and material on each job. Monthly statements are submitted by the superintendent of repairs to the municipal architect showing the expenditures and the balance on the appropriations Daily reports are submitted showing the buildings under repair and the character of the work. The former reports of the engineer department and the bureau

of education show that the repair work for the District is done economically and that less is spent in repairs on schools than in other cities of like size and importance.

Snowden Ashford, Municipal Architect.

Capt. R. G. POWELL, Corps of Engineers, United States Army (Assistant to Engineer Commissioner).

### REPORT OF THE SUPERINTENDENT OF REPAIRS.

WASHINGTON, D. C., September 15, 1915.

SIR: I have the honor to submit a statement showing the cost of repairs in detail on each and every building; also showing the proportion of the funds that were

spent for labor and material.

In submitting this report I desire to take this opportunity in suggesting the importance of having some one to act as a caretaker or night watchman at the several large school buildings; with such a man in charge there will be some protection to District property after the janitor leaves the building at night.

Respectfully,

HENRY STOREY, Superintendent of Repairs, District of Columbia.

The MUNICIPAL ARCHITECT.

## Public schools, District of Columbia, 1915—Repairs to buildings.

Class of work,	Labor.	Material.	Contract.	Total.
Abbott School, No. 27:				
Carpentering		\$36. 12		\$515.99
Tinning	17. 05	23.70		40.75
Heating	6.00	28.22		34. 22
Plumbing		6.79		5. 58
PaintingGlazing		1.95		17. 29 6. 95
Glazing		1.99		5. 42
= iscensueous	3. 43	1.99		5. 42
Total	528. 73	99.47		626. 20
Adams School, No. 65:				
Carpentering		7.82		21.69
Tinning		. 31		4.95
Heating.		31.57	[	36.95
Plumbing		10.34	! <u> </u>	27.67
Painting		1. 42 3. 48	<del>-</del>	5. 42 26. 96
Glazing	23.50	3. 45		20.96
Total	68. 72	54.94		123.66
Addison School, No. 53:				
Carpentering		9.87	1	55. 80
Tinning		12.05		29.61
Heating		1.79		1. 79
Plumbing		.45		10. 82
Painting		1.44	[	4. 44
Glazing		3.63		11.63
Miscellaneous	· · · · · · · ·   · · · · · · · · · · ·	1.74		1.74
Total	84. 86	30.97		115. 83
Ambush School, No. 79:				
Carpentering	66.42	32.07	l	98.49
Tinning.		8.00		30. 94
Heating.		6.52		6. 52
Plumbing.		6.25		20. 81
Painting		10.01		52.02
Glazing		. 69		2.44
Miscellaneous		. 74		. 74
- · •	4 12 11			
Total	147. 68	64.28		211.90

# Public schools, District of Columbia, 1915—Repairs to buildings—Continued.

	Labor.
	57.38
10.85	
134.95   129.64   264.5	
19.50 6.15 25.6	
	12. 15
1.74 1.7	
637. 20 470. 30 1, 107. 5	637. 20
ol, No. 129:	26 10
200.74 389.39 590.1	
31.12 13.90 45.00	
150 25 47 22 905 5	158, 25
7.75 1 10.16 1 17.9	7.75
67.47 46.14 113.6	
scape	
6.34 6.3	
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	672.85
76.06 10.67 86.7	76.06
4.00 1.83 5.8	
8.00 3.92 11.95	
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	192.40
	120.00
110.92 114.09 225.0	
110.92 114.09 225.0. 225.0. 50.74 50.74	110.92
23.54 6.22 29.7	22 54
مقت ا معما العقد ا	
2.31 2.75 5.00	2.31
15.84 10.49 26.3	15.84
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	281.51
	281, 51
	<del></del>
	10.00
	10.00
	10.00
	10.00 50.62 4.06
	10.00 50.62 4.06
	10.00 50.62 4.06 11.00 116.88
	10.00 50.62 4.06 11.00 116.88 5.00
	10.00 50.62 4.06 11.00 116.88 5.00
10.00   155.74   50.74   487.99   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10	10.00 50.62 4.06 11.00 116.88 5.00
	10.00 50.62 4.06 11.00 116.88 5.00 9.37
	10.00 50.62 4.06 11.00 116.88 5.00 9.37
	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93
10.00   15.74   50.74   487.99   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93
	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50
10.00	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75
10.00	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52
	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52
10.00   15.74   50.74   487.99	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36
	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36
10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.00   10.0	10.00 50.62 4.06 11.00 116.83 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36
	10.00 50.62 4.06 11.00 116.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36
10.00	10.00 50.62 4.06 11.00 118.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36 50.82
10.00	10.00 50.62 4.06 11.00 116.83 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36 50.82
10.00	10.00  50.62 4.06 11.00 110.88 5.00 9.37 196.93 10.25 6.44 3.50 1.75 6.52 22.36 50.82
10.00	10.00  50.62 4.06 11.00 116.83 5.00 9.37  196.93  10.25 6.44 3.50 1.75 6.52 22.36  17.18 101.94 3.25 2.00
	10.00  50.62 4.06 11.00 116.83 5.00 9.37  196.93  10.25 6.44 3.50 1.75 6.52 22.36  17.18 101.94 3.25 2.00
10.00	10.00  50.62 4.06 11.00 116.83 5.00 9.37  196.93  10.25 6.44 3.50 1.75 6.52 22.36  17.18 101.94 3.25 2.00

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# Public schools, District of Columbia, 1915—Repairs to buildings—Continued.

	Labor.	Material.	Contract.	Total.
Birney School, No. 127;				
Carpentering	\$1,444.10	\$423,01		\$1,867.11
Tinning	165. 15	210.14		375. 29
Heating	.94	<i>.</i>	\$37.04	37.98
Plumbing	73.20	37.20		110.40
Painting	58. 81	27.10		85. 91
Glazing.	4.75	3.20		7.95
Hand rails on steps	20.38 55.91	1.76 14.13		22. 14
Miscellaneous		.74		70.04 .74
Total	1,823.24	717. 28	37.04	2,577.56
Blair School, No. 50:				
Carpentering	68.28	17.22		85. 50
Tinning	30. 12	15.93		46.05
Heating	85.85	163. 12		248. 97
Plumbing	24. 36	4.42		28.78
Painting.	256. 26	52.25		308.51
Glazing.	21.88	13. 13		85.01
Gas engines. Miscellaneous.	19.02	10.10 1.74		29. 12 1. 74
Total				
	505.77	277.91		783.68
Blake School, No. 61:				
Carpentering	107.25	120.54		227.79
Tinning	13. 75	5.75		19.50
Heating	•••••	<u></u> .	24.64	24.64
Plumbing Painting	1.50	. 65		2. 15
Cleaning	8.50	4.34		12.84
Glazing Repairing handrail.	7.57 1.93	6. 12 . 16		13.69
·  -				2.09
Total	140.50	137.56	24.64	302.70
Now School, No. 145:				
Carpentering	30.67	.47		31.14
Heating		12.72		12.72
Plumbing	8. 13	. 55		8.68
Painting	13.38	2.00		15.38
Glazing.	6.50	2.04	· · · · · · · · · · · ·	8.54
Grading	97.78	46. 20		143.98
Motor	13.09	2.68		15.77
-		1.74		1.74
Total	169.55	68.40		237.95
L. Bowen School, No. 109:				
Carpentering	13.56	. 54	<i></i>	14. 10
Tinning	196.93	288. 51		485.44
Heating			14.49	14.49
Plumbing	6.81	1.23		8.04
Painting.	8.50	3.25		11.75
Glasing	3.25	3.58		6.83
Gas engine	4.49	3.75		8.24
Miscellaneous	• • • • • • • • • • • • • • • • • • • •	1.74		1.74
· · · · · · · · · · · · · · · · · · ·				
Total	233.54	302.60	14.49	550.63
J. J. Bowen School, No. 123:	233.54	302. 60	14.49	550.63
J. J. Bowen School, No. 123:			14.49	
J. Bowen School, No. 123: Carpentering	64.31	40.59	14.49	104.90
J. Bowen School, No. 123:	64.31 62.59	40.59 23.48	14.49	104.90 86.07
L. J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Painting.	64.31 62.59 6.50 115.00	40.59 23.48 2.62 24.13	14.49	104.90 86.07 9.12
L. J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Painting. Olazing	64.31 62.59 6.50 115.00 30.25	40.59 23.48 2.62 24.13 11.50	14.49	104. 90 86. 07 9. 12 139. 13 41. 75
L. J. Bowen School, No. 123:  Carpentering.  Tinning. Plumbing. Painting. Glazing Steamfitting.	64.31 62.59 6.50 115.00 30.25 42.43	40.59 23.48 2.62 24.13 11.50 7.17	14.49	104. 90 86. 07 9. 12 139. 13 41. 75
L. J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Painting. Glazing Steamfitting. Repairing fror fence.	64.31 62.59 6.50 115.00 30.25	40.59 23.48 2.62 24.13 11.50 7.17 .35	14.49	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10
L J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Painting Glazing Steamfitting.	64.31 62.59 6.50 115.00 30.25 42.43	40.59 23.48 2.62 24.13 11.50 7.17	14.49	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10
L. J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Painting. Glazing Steamfitting. Repairing fror fence.	64.31 62.59 6.50 115.00 30.25 42.43	40.59 23.48 2.62 24.13 11.50 7.17 .35	14.49	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10
Carpentering. Carpentering. Tinning. Plumbing. Painting. Glazing. Steamfitting. Repairing iror fence. Miscellaneous.  Total.	64.31 62.59 6.50 115.00 30.25 42.43 10.75	40.59 23.48 2.62 24.13 11.50 7.17 .35	14.49	104.90 86.07 9.12 139.13 41.75 49.60 11.10
L. J. Bowen School, No. 123: Carpentering. Tinning. Plumbing. Plumbing. Painting. Glazing. Steamfitting. Repairing iror fence. Miscellaneous. Total Bradley School, No. 60:	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75	40.59 23.48 2.62 24.13 11.50 7.17 .35 1.74	14.49	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74
Carpentering.  Carpentering.  Tinning. Plumbing. Painting. Glazing Steamfitting. Repairing iror fence. Miscellaneous.  Total.  Bradley School, No. 60: Carpentering.	64.31 62.59 6.50 115.00 30.25 42.43 10.75	40.59 23.48 2.62 24.13 11.50 7.17 .35 1.74 111.58	14.49	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74 443. 41
Carpentering. Carpentering. Tinning. Plumbing. Painting Glazing Steamfitting. Repairing iror fence. Miscellaneous.  Total.  Bradley School, No. 60: Carpentering. Tinning.	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75	40.59 23.48 2.62 24.13 11.50 7.17 .35 1.74 111.58		104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74 443. 41
Carpentering.  Carpentering.  Tinning.  Plumbing.  Painting.  Glazing.  Steamfitting.  Repairing iror fence.  Miscellaneous.  Total.  Bradley School, No. 60:  Carpentering.  Tinning.  Heating.	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75 331. 83	40. 59 23. 48 2. 62 24. 13 11. 50 7. 17 .35 1. 74 111. 58 24. 91 120. 62 .81	7.83	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74 443. 41 249. 95 167. 62 8. 64
Carpentering. Carpentering. Tinning. Plumbing. Painting. Glazing Steamfitting Repairing iror fence. Miscellaneous.  Total.  Bradley School, No. 60: Carpentering. Tinning. Heating. Plumbing.	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75 331. 83 225. 04 47. 00	40.59 23.48 2.62 24.13 11.50 7.17 .35 1.74 111.58 24.91 120.62 .81 .46		104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74 443. 41 249. 95 167. 62 8. 64 9. 39
L. J. Bowen School, No. 123:  Carpentering.  Tinning. Plumbing. Painting. Glazing Steamfitting. Repairing iror fence. Miscellaneous.  Total.  Bradley School, No. 60: Carpentering. Tinning. Heating. Heating. Plumbing. Plumbing. Painting. Glazing. Glazing.	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75 331. 83	40. 59 23. 48 2. 62 24. 13 11. 50 7. 17 .35 1. 74 111. 58 24. 91 120. 62 .81	7.83	104. 90 86. 07 9. 12 139. 13 41. 75 49. 60 11. 10 1. 74 443. 41 249. 95 167. 62 8. 64 9. 39 7. 01
S. J. Bowen School, No. 123: Carpentering.  Tinning. Plumbing. Painting. Glazing Steamfitting Repairing fror fence. Miscellaneous  Total.  Bradley School, No. 60: Carpentering. Tinning. Heating. Plumbing. Plumbing. Painting.	64. 31 62. 59 6. 50 115. 00 30. 25 42. 43 10. 75 331. 83 225. 04 47. 00	40.59 23.48 2.62 24.13 11.50 7.17 .35 1.74 111.58 24.91 120.62 .81 .46 2.51	7.83	104.90 86.07 9.12 139.13 41.75 49.60 11.10

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# Public schools, District of Columbia, 1915—Repairs to buildings—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
Frent School, No. 46:				
Carpentering	\$33.57	<b>\$3.6</b> 5		\$37.22
Tinning	12,00	8.70		20.70
Heating.	9.00	214.50		223.50
Plumbling	13.07			13.07
Painting	147. 19	23.61		170.80
Glazing Gas engine.	11.25	3.79		15.04
Gas engine	12.32	9.91		22.23
Miscellaneous		.74		.74
Total	238. 40	264.90		508.30
riggs School, No. 75:				
Carpentering	132, 46 203, 94	190. 21		322.67
Tinning	AUS. 93	326.64		530.58
Heating.	•••••	143.76		143.76
Plumbing.	11.38	.66		12.04
Painting	4.25	6.14		10.39
Glazing	27.00	5.20	·····	32. 20
Total	379.03	672.61		1,051.64
ightwood School, No. 104:				
Carpentering	15.80	5.76	J	21.56
Tinning	32. 47 6. 51	10.98	l	43.45
Plumbing	6.51	.48		6.99
Painting	3.50	2.82		6.32
Claring	6. 25	2, 58		8.83
Steamfitting	19.64	.81	\$104.00	124.45
Steamfitting Repairing area rail	3.00		1	3.00
Miscellaneous	•••••	1.74		1.74
Total	87.17	25.17	104.00	216.34
debianced Donk Cohool No. 181.				
ightwood Park School, No. 151:		l	1	
Carpentering	3.00	2.77		5.77
Tinning	45.59	33.52		79.11
Plumbling.	4.06	.36	l	4.42
Painting	2.00	.87		2.87
Glazing	5.00	3.70		8. 70
Glazing Gas engine	6.89	15.58		22.47
Total	66.54	56.80		123.34
rookland School, No. 103:				
Carpentering	163.62	14.68		178.30
Tinning	17. 25	12.50		29.75
Tinning. Plumbing.	.33			.33
Painting	5.50	4.47	l	9. 97
Painting Glazing	2.00	1.71		3.71
Steamfitting	70.37	22.42		92.79
Miscellaneous	10.31	.25		. 25
Total.	259.07	56.03		315. 10
	208.07			313.10
ruce School, Nr. 112:			1	
Carpentering	15.50	3.02		18.52
Tinning	17.74	8.35		21.00
Heating		5.29	]	5. 29
Plumbing	15.44	21.29 1.77		36.73 5.77
Painting	4.00	1.77	l	5.77
Glazing Gas engine	5.25	4.01	l	9. 26
Gas engine	5.93	15.79	l	21.72
Miscellaneous		2.80		2.80
ļ	63.86	57.32		121. 18
Total				
				1
ryan School, No. 155:	2 013 62	635 01	[ [	2 640 52
ryan School, No. 155: Carpentering.	2,013.62	635. 91		2, 649. 53
ryan School, No. 155: Carpentering. Tinning.	695. 18	641.91		1,337.09
ryan School, No. 155: Carpentering. Tinning.	695. 18 25. 67	641.91		1,337.09 26.57
yan School, No. 155: Carpentering. Tinning.	695. 18 25. 67 128. 22	641.91 .90 51.74		1,837.09 26.57 179.98
ryan School, No. 155: Carpentering. Tinning. Plumbing. Painting Glazing.	695. 18 25. 67 128. 22 5. 00	641.91 .90 51.74 3.15		1, 337.09 26.57 179.96 8.15
ryan School, No. 155: Carpentering. Tinning. Piumbing. Painting Glazing	695. 18 25. 67 128. 22	641.91 .90 51.74		1, 337.09 26.57 179.96 8.15 28.54
ryan School, No. 155: Carpentering. Tinning. Plumbing. Painting. Glazing. Gas engine. Lintels, etc., for east and west windows.	695. 18 25. 67 128. 22 5. 00	641.91 .90 51.74 3.15 19.65	990.00	1,337.09 26.57 179.96 8.15 28.54 990.00
ryan School, No. 155: Carpentering. Tinning. Plumbing. Painting. Glazing	695. 18 25. 67 128. 22 5. 00 8. 89	641.91 .90 51.74 3.15	990.00	179.96 8.15 28.54

# Public schools, District of Columbia, 1915—Repairs to buildings—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
Buchanan School, No. 96:				
Carpentering.	\$68.44	\$23.37	1	\$91.81
Tinning	171.75	202.70		374.45
Heating.		<u>.</u>	\$8.22	8. 22
Phimbing.	8.94	3.23		12. 17
Painting Glazing	177.08 3.68	29. 78 1. 56		206. 86 5. 24
		<u> </u>	0.00	
	429.89	260. 64	8. 22	698.75
Bunker Hill School, No. 47:	10.00			
Carpentering.	10.38	6.28		16.66
Heating. Plumbing.	2. 25	.49		. 49 2. 25
Painting.	2.00	1.39		3.39
Glazing	1.00	.11		1.11
Total	15. 63	8. 27		23.90
Burrville School, No. 91:				
Carpentering	59. 31	16.40	l	75.71
Painting.	1.00	.70		1.70
Glazing	1.50	.42		1.92
Steamfitting	75. 15	17.37		92.52
Steamfitting	45.38	6.67		52.05
Total	182. 34	41.56		223.90
Busniess High School, No. 144:	514. 59	494. 23	ì	1 000 00
Carpentering Tinning	152.06	78.31		1,008.82 230.37
Plumbing.	70.01	12. 26		82. 27
Painting	56.81	33.96		90.77
Glazing	8. 25	3.74		11.99
Steamfitting	108. 56	42.67		151.23
Miscellaneous	10.84	14.64		25. 48
Total	921. 12	679. 81		1,600.93
Carbery School, No. 58:				
Carpentering	293. 53	56.50	l	350.03
Tinning	384. 59	305.08		689.67
Plumbing	2.44	<u></u>		2.44
PaintingGlazing	147. 12 30. 75	23. 10 14. 03		170. 22
Steamfitting (janitor).	30.73	.38		44.78 .38
Repairing iron fence	1.31			1.31
Total	859.74	399.09		1, 258. 83
Cardoza School, No. 148:				
Carpentering	16.84	11.85		28.69
Tinning. Heating.	99.04	172.60		271.64
Heating		11.70		11.70
Plumbing	2.06	. 01		2.07
Painting	127.03	30.02		157.05
GlazingGas engine	25. 75 34. 49	19. 28 33. 48		45.03 67.97
Miscellaneous		.74		. 74
Total	305. 21	279, 68		584, 89
				0.71, 00
Cardoza Manual-Training School, No. 168: Carpentering	9. 72	5. 27		14.99
Tinning	1.44			1.44
Plumbing	14.56	.05		14.61
Painting	71. 75	12.79		84.54
Glazing Hand rails and grating	24. 28 10. 41	7.82		32, 10 10, 88
Total	132. 16	26.40		158. 56
Central High School, No. 43:	40	l		
Carpentering	604.45	515.01	[	1, 119. 46
Tinning. Plumbing.	138.65	104.48 4.00		243. 13
Painting	54. 79 35. 00	18.13		58. 79 53. 13
Glazing	21.06	12.36		33. 42
Steamfitting	145.60	75. 25	12.45	233.30
Miscellaneous		5. 58		5.58
Total	999. 55	734 81	12 45	1, 746. 81

# Public schools, District of Columbia, 1915-Repairs to buildings - Continued.

Class of work.	Labor.	Material.	Contract.	Total
Chain Bridge Road School, No. 6:				
Carpentering	\$16.00	\$18.84		\$34.44
Tinning	3.58	1.29		4.5
Total	19. 58	20. 13		59.73
Chevy Chase School, No. 113:				
Carpentering	7.50	.06		1.5
Tinning	2. 15			21
Heating. Plumbing.	71.00 10.00	28.53 1.17	\$61.30	190. s
Painting	12.00	9.98		21.9
Glazing	2.00	. 81		2 .
Motor	11.42	1. 12		12.5
Total	116.07	41.69	61.30	219 9
Cleveland School, No. 165:				
Carpentering	41.38	14.01	l	55.3
Tinning	11.94	7.23	<u> </u>	19.1
Heating		100.00	531. 27	
PlumbingPainting	63. 65 74. 06	10. 58 33. 83		74.2 167.4
Glazing	23. 25	6.04		30.7
Motor	60. 27	18.07		78.3
Lock on door to fan room	2.56	. 15		2.7
Miscellaneous		.23	• • • • • • • • • •	
Total	277. 11	90.14	531. 27	1694.2
Conduit Road School, No. 25:				<del>'</del>
Carpentering	176.34	78.38		25L.7
Tinning	19.62	27.08		<b>4.7</b>
PlumbingPainting	115.81	136.00		551.1 (1.17
ramung	34.00	7. 17		
Total	345. 77	248.63		594. #
Congress Heights School, No. 111:	ŀ	İ	ľ	
Carpentering	285. 12	211.04	<b></b> -	496. H
Tinning	15.72	38.75		54.6
Plumbing.	21. 22 76. 88	2. 46 27. 11		23.0 103.9
Painting	76.00	34. 22		110 2
Glazing	15.68	5, 75		21. C
Steam fitting	6.31	1.00		7. 51
Grading	795, 41	57. 66		853.67
Total	1, 292. 34	377.99		1,674.33
J. F. Cook School, No. 30:	[	(		
Carpentering	13.00	4.34		17.34
Tinning	120.38	165. 26		263.64
Heating. Plumbing.	1.01 7.55	6. 37 1. 37	25. 19	32.5 X 12
Glazing	2, 28	2.07		25
Gas engine	13.07	4.47		17.50
Total	157. 29	183. 88	25. 19	366.36
H. D. Cooke School, No. 154:				
Carpentering	397.40	338, 50		735.99
Tinning	7.00	2, 89		1.9
Heating	525. 67	170. 77		696. H
Plumbing Painting	15. 75	8.39 11.41		91.14 29.94
Glazing	28. 53 3. 75	2.18		5.93
Gas engines	56.03	18.97		73.00
Total	1,034.13	553. 11		1,587.2
Corcoran School, No. 68;				
Carpentering	81.62	79.40		16L.C
Tinning	77.33	114.68		192 CL
Heating	38, 03	44.71	41.77	134.5
PlumbingPainting	6.51	.71 7.50		7.23 25.27
Glazing	17. 82 2. 50	.94		14
Miscellaneous		1.74		1.74
Total	223. 81	249. 68	41. 77	515.26
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# Public schools, District of Columbia, 1915—Repairs to buildings—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
Cranch School, No. 137:				
Carpentering.	\$93, 62	\$22.39		\$116.01
Tinning	10. 46	8.62		19.08
Plumbing	12.68	5. 27		17. 95
Painting.	307. 71	55.82		363. 53
Glazing	8.00	8.34		16.34
Steam fitting Miscellaneous	<b>32,</b> 78	10. 19 1. 74		42.97 1.74
Total	465, 25	112.37		577. 62
Crummell School, No. 167:				
Glazing	8, <b>2</b> 5 <b>5,</b> 88	2.95		11. 20 5. 88
Heating. Plumbing			\$193.75	193. 75
Painting	156.60	18.42		175.02
Gas engine.	1.00 .81	. 91		1.91 .81
Total.	172, 54	22, 28	193, 75	388, 57
Curtis School, No. 26:				
Carpentering	135, 32	25. 44	l	160, 76
Tinning	84, 84	32, 14		116.98
Phimbing.	7. 31	.79	l	8, 10
Painting	48, <b>25</b>	9.17		57. 42
Glazing	40. 25	16. 13		56.38
Steam fitting	3.68	.31		3.99
Miscellaneous Repairing fire escape	5. 81	1.74 .22		1.74 6.03
Total	325. 46	85, 94		411. 40
	320. 10	00. 51		411.40
Dennison School, No. 52:				
Carpentering.	18,00	6. 22	l	24. 22
Plumbing	18, 38	9.00		27.38
Painting	6, 50	5. 43		11.93
Glazing	28, 25	9.85		38. 10
Steam fitting	52, 91	18. 05		70. 96
Total	124.04	48, 55		172. 59
Deanwood School, No. 152:				
Carpentering.	232, 21	225, 40	l	457. 61
Tinning	23, 00	56, 43		79. 43
Heating	<b>.</b>		31.31	31.31
Painting.	13. 50	4. 20		17.70
Glazing Repairing handrail	4. 75	3.06		7.81
Repairing nandraii	1.38	.01		1. 39
Total	274. 84	289. 10	31.31	595, 25
Dent School, No. 120:				
Carpentering	36.84	11.23	ا	48.07
Tinning	46.63	32.06		78.69
Plumbing	37. 49	9.80		47. 29
Painting	9. 75	10.23		19.98
Glazing	1.00	.87		1.87
Steam fitting	4.68			4.68
Gas engine	10.67	6.44		17. 11
Miscellaneous	• • • • • • • • •	.38		. 38
				218.07
Total	147.06	71.01		
Douglass School, No. 99:				
Douglass School, No. 99: Carpentering.	72.75	8. 15		80.90
Douglass School, No. 99: Carpentering	72.75 162.00	8. 15 149. 96		311.96
Douglass School, No. 99: Carpentering	72.75 162.00 31.05	8. 15 149. 96 5. 76		311.96 36.81
Douglass School, No. 99: Carpentering. Tinning. Plumbing. Painting.	72. 75 162. 00 31. 05 4. 00	8. 15 149. 96 5. 76 1. 09		80. 90 311. 96 36. 81 5. 09
Douglass School, No. 99: Carpentering	72.75 162.00 31.05 4.00 9.00	8. 15 149. 96 5. 76 1. 09 5. 60		311.96 36.81 5.09 14.60
Douglass School, No. 99: Carpentering	72. 75 162. 00 31. 05 4. 00	8. 15 149. 96 5. 76 1. 09		311.96 36.81 5.09 14.60
Douglass School, No. 99: Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80	8. 15 149. 96 5. 76 1. 09 5. 60 170. 56		311.96 36.81 5.09 14.60
Douglass School, No. 99: Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80	8.15 149.96 5.76 1.09 5.60 170.56		311. 96 36. 81 5. 06 14. 60 449. 36
Douglass School, No. 99: Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73	8. 15 149.96 5. 76 1. 09 5. 60 170. 56		311. 96 36. 81 5. 06 14. 60 449. 36 234. 88 265. 38
Douglass School, No. 99:     Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73 46. 82	8. 15 149. 96 5. 76 1. 09 5. 60 170. 56 55. 90 124. 65 36. 60		311. 96 36. 81 5. 00 14. 60 449. 36 234. 88 266. 38 83. 42
Douglass School, No. 99:     Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73 46. 82 205. 06	8. 15 149.96 5. 76 1. 09 5. 60 170. 56 55. 90 124. 65 36. 60 30. 11		311. 96 36. 81 5. 09 14. 60 449. 36 234. 88 265. 38 83. 42 235. 17
Douglass School, No. 99:   Carpentering.	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73 46. 82 205. 06 27. 75	8. 15 149. 96 5. 76 1. 09 5. 60 170. 56 55. 90 124. 65 36. 60 30. 11 16. 46		311. 96 36. 81 5. 09 14. 60 449. 36 234. 88 265. 38 83. 42 235. 17 44. 21
Douglass School, No. 99:     Carpentering	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73 46. 82 205. 06	8. 15 149. 96 5. 76 1. 09 5. 60 170. 56 55. 90 124. 65 36. 60 30. 11 16. 46 92. 62		311. 96 36. 81 5. 09 14. 60 449. 36 234. 88 265. 38 83. 42 235. 17 44. 21 140. 58
Douglass School, No. 99:   Carpentering.	72. 75 162. 00 31. 05 4. 00 9. 00 278. 80 178. 98 140. 73 46. 82 205. 06 27. 75	8. 15 149. 96 5. 76 1. 09 5. 60 170. 56 55. 90 124. 65 36. 60 30. 11 16. 46		311.96 36.81

Class of work.	Labor.	Material.	Contract.	Total.
Eaton School, No. 160:				
Carpentering	\$108.33	\$17.64		\$125.97
Tinning	21.75	2.86		24.61
Heating. Plumbing.	17.00		\$441.13	441. 13
Painting.	17.06 4.50	1.62		17.68
Glazing	1.25	1.91		6.41 1.43
Steam fitting	1.20	.67		.67
Gas engine and motor	7.78	4.90		12.68
Total			441 19	
	160.67	28.78	441.13	630.58
Eckington School, No. 116: Carpentering	27.14	1 40		00.00
Heating.	21.17	1.48	186.30	28.62 196.30
Plumbing	3.26	.25	100.00	3.51
Painting	5.00	3.04		8.04
Glazing	3.50	4.06		7.56
Gas engine	10.70	12.10		22.80
Miscellaneous		.74		.74
Total	49.60	21.67	186.30	257.57
Edmonds School, No. 135:		22.01	100.00	201.01
Carpentering	155.95	80.95		000 00
Tinning	168. 47	153.07		236, 90 321, 54
Heating	100.47	.65	2.79	321.54
Plumbing	32, 81	9.65	2.75	42. 46
Painting	134. 25	22.08		156.33
Glazing	2.24	.89		3. 13
Gas engine	43,55	26.32		69.87
Miscelfaneous		1.74		1.74
Total	537.27	295.35	2.79	835. 41
Emery School, No. 133:				
Carpentering	32. 19	8.28		40.47
Tinning.	37.34	16.90		
Heating	30. 24	20.11		54. 24 50. 35
Plumbing.	14.56	20.11		30. 33 17. 28
Painting	5.50	6.87		12.37
Glazing	6.50	4.36		10.86
Steam fitting	34.14	8.77	257.90	300.81
Miscellaneous		.74		. 74
Total	160.47	68. 75	257.90	487. 12
Pairbrother School, No. 159.				
Carpentering	25. 15	5.33		30.48
Heating.		.39	318.07	318. 46
Plumbing.	9.75	3.76		13. 51
Painting	2.50	2.12		4.62
Gas engine	. 25	. 43		. 68
Miscellaneous	54.55	42.49		97.04
Putting name on building	• • • • • • • • • • • • • • • • • • • •	.38	55.00	. 38 55.00
Total				
	92.20	54.90	373.07	520.17
Fillmore School, No. 92: Carpentering			1	
Tinning.	153.98	153.65		307.63
Heating	5.75	1.99		7.74
Plumbing.		<u></u> -	14.88	14.88
Painting	. 81 108. 38	. 16		. 97
Glazing	12.00	24.99		133.37
Miscellaneous	12.00	2.88 2.23		14.88
				2.23
Total	280.92	185. 90	14.88	481.70
Force School, No. 32:			j	
Carpentering	156.59	53.04	J	209.63
Tinning.	364.72	356.57	[	721.29
Plumbing	31.93	48.83	[l	80.76
PaintingGlazing	6.00	2.14		8.14
Steam fitting	32.25	6.28		38.53
Motor	119. 20	24.53	1,998.00	2, 141. 73
Miscellaneous.		11.40	[	11.40
me my vanditures and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a		. 38		.38
Total	710.69	503.17	1,998,00	3, 211. %
	======		2,000.00	0,211.70

Class of work.	Labor.	Material.	Contract.	Total.
Franklin School, No. 15:				
Carpentering	\$61.81	\$19.26		\$81.07
Tinning	40. 59	23.20		63. 79
Tinning. Heating.			\$1,320.00	1,320.00
Plumbing	41.93	8.94	[	50.87
Painting	1.00	. 48		1.48
Glazing	44. 68 277. 70	10.63	<b>-</b>	55. 31
Steam fitting	277. 70	73.88		351.58
Altering fire escape. Miscellaneous.	6. 25	. 58		6.83 .74
Total	473.96	137. 71	1, 320. 00	1,931.67
Repairs made at Franklin School to accommodate Western High School:				
Carpentering	381.05	251.76		632, 81
Heating.	9.00	1.54		10.54
Plumbing.	26. 72	28.03		54. 75
Painting	20.12	111.83		
Glazing	303.75 1.25	.38		415.58
Altering north fire escape.	.94	.05		1.63
<b>.</b>				.99
Total	722.71	393. 59		1, 116. 30
B. B. French School, No. 141:		ŀ	[	
Carpentering	. 75			. 75
'I'mning	14.78	9.84		24.62
Heating.		· · · · · <u>· · · · · ·</u> ·	9.84	9.84
Plumbing.	13.00	1.76		14.76
Painting	216. 63	31.42	[	248.05
Glasing Gas engine	2.00	. 59	[	2.59 7.37
Gas engine	3.68	3.69		7.37
Total	250. 84	47.30	9.84	307.98
lage School, No. 143:				
Carpentering	51.00	61.44	l l	112, 44
Heating.	3.94	2.18	11.39	17.51
Plumbing.	30.88	14.76	11.00	45, 64
Painting	4.00	2.69		6.69
Glazing.	3.00	3.29		6.20
Gas engines.	4.97	21.30		6. 29 26. 27
Total	97.79	105.66	11.39	214.84
Bales School, No. 36:			l i	
Carpentering	264.40	429.93	[	694. 33
Tinning	70.77	83. 81		154, 58
	37.09	4.32	1	41.41
Plumbing	580.95			
Painting		86.91		41. 41 667. 86
PaintingGlasing	8, 75	2.52		11.27
Painting	8. 75 43. 28	86. 91 2. 52 15. 08		11. 27 58. 36
Painting	8, 75	2.52		11.27
Painting	8. 75 43. 28	2. 52 15. 08		11. 27 58. 36
Painting Glasing Steam fitting Trimming trees Total	8. 75 43. 28 8. 00	2, 52 15, 08		11. 27 58. 36 8. 00
Painting Glazing Steam fitting Trimming trees  Total	8. 75 43. 28 8. 00 1, 013. 24	2. 52 15. 08 622. 57		11. 27 58. 36 8. 00 1, 635. 81
Painting Glasing Steam fitting. Trimming trees  Total.  Parnet School, No. 34: Carpentering.	8. 75 43. 28 8. 00 1, 013. 24 36. 38	2. 52 15. 08 622. 57		11. 27 58. 36 8. 00 1, 635. 81
Painting Glaxing Steam fitting Trimming trees  Total  Parnet School, No. 34: Carpentering Tinning	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00	2, 52 15, 08 		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68
Painting Glaring Steam fitting Trimming trees  Total.  Jarnet School, No. 34: Carpentering Tinning. Painting	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75	2. 52 15. 08 		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48
Painting Glasing Steam fitting Trimming trees  Total.  Jarnet School, No. 34: Carpentering Tinning. Painting. Plumbing.	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75	2. 52 15. 08 		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48
Painting Glazing Steam fitting Trimming trees  Total  Garnet School, No. 34: Carpentering Tinning. Painting Pumbing. Plumbing. Glazing	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99
Painting Glazing Steam fitting Trimming trees  Total  Garnet School, No. 34: Carpentering Tinning. Painting Pumbing. Plumbing. Glazing	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66	298. 50	11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83
Painting Glasing Steam fitting Trimming trees  Total.  Jarnet School, No. 34: Carpentering Tinning. Painting. Plumbing.	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83
Painting. Glazing. Steam fitting. Trimming trees.  Total  Parnet School, No. 34: Carpentering. Tinning. Painting. Pumbing. Plumbing. Glazing.	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66		11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83 1. 12
Painting Glaxing Steam fitting. Trimming trees  Total.  Garnet School, No. 34: Carpentering. Tinning. Painting. Plumbing Glazing Steam fitting. Miscellaneous.  Total.	8. 75 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25 143. 67	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12	298. 50	11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83 1. 12
Painting. Glasing. Steam fitting. Trimming trees.  Total.  Jarnet School, No. 34: Carpentering. Tinning. Painting. Painting. Plumbing. Glazing. Steam fitting. Miscellameous.  Total.  Carfield School, No. 158:	8. 76 43. 28 8. 00 1, 013. 24 36. 38 2. 00 146. 75 29. 74 42. 25 143. 67	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12	298. 50	11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83 1. 12
Painting Glaxing Steam fitting. Trimming trees  Total.  Parnet School, No. 34: Carpentering. Tinning. Painting. Plumbing. Glazing. Steam fitting. Miscellaneous.  Total.  Darfield School, No. 158: Carpentering.	8. 76 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25 143. 67 400. 79	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11	298. 50	11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 48 38. 13 47. 99 506. 83 1. 12
Painting Glasing Steam fitting. Trimming trees  Total.  Carpentering. Painting Painting Plumbing Glazing Steam fitting. Miscellaneous.  Total.  Carpentering Heating Heating Heating Heating	8. 76 43. 28 8. 00 1,013. 24 36. 38 2. 00 146. 75 29. 74 42. 25 143. 67 400. 79	2. 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11	298. 50	11. 27 58. 36 8. 00 1, 635. 81 47. 17 3. 68 188. 42 38. 13 47. 99 506. 83 1. 12 832. 40
Painting Glasing Steam fitting Trimming trees  Total.  Parnet School, No. 34: Carpentering Tinning Painting Painting Plumbing Glazing Steam fitting Miscellaneous  Total.  Parfield School, No. 158: Carpentering Heating Plumbing	8, 75 43, 28 8, 00 1,013, 24 36, 38 2, 00 146, 75 29, 74 42, 25 143, 67 400, 79 168, 25 9, 75 151, 82	2, 52 15. 08 622. 57 10, 79 1, 68 41. 73 8, 39 5, 74 63, 66 1, 12 133. 11 65, 17 2, 66 134, 25	298. 50	11, 27 58, 30 1, 635, 81 47, 17 3, 68 188, 48 38, 13 47, 99 506, 58 50, 52 233, 42 20, 06 286, 07
Painting Glasing Steam fitting Trimming trees  Total.  Garnet School, No. 34: Carpentering Tinning. Painting. Plumbing Glazing Steam fitting Miscellaneous  Total.  Garfield School, No. 158: Carpentering Heating. Plumbing	8, 75 43, 28 8, 00 1, 013, 24 36, 38 2, 00 146, 75 29, 74 42, 25 143, 67 400, 79 168, 25 9, 75 151, 82 24, 00	2, 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11 65. 17 2. 66 134. 25 12. 96	298. 50	11, 27 58, 36 8, 00 1, 635, 81 47, 17 3, 68 188, 44 38, 13 47, 99 506, 83 1, 12 832, 40 20, 08 20, 07 38, 69
Painting Glasing Steam fitting Trimming trees  Total.  Garnet School, No. 34: Carpentering Tinning. Painting. Plumbing Glazing Steam fitting Miscellaneous  Total.  Garfield School, No. 158: Carpentering Heating. Plumbing	8, 75 43, 28 8, 00 1,013, 24 36, 38 2, 00 146, 75 29, 74 42, 25 143, 67 400, 79 168, 25 9, 75 151, 82	2, 52 15, 08 	298. 50	11, 277 58, 36 8, 00 1, 635, 81 47, 17 3, 68 188, 49 38, 13 47, 99 506, 53 1, 12 23, 42 20, 69 286, 07 30, 98
Panting. Glasing. Steam fitting. Trimming trees.  Total.  Garnet School, No. 34: Carpentering. Tinning. Painting. Piumbing. Olazing. Steam fitting. Miscellaneous.  Total.  Garfield School, No. 158: Carpentering. Heating. Plumbing. Glazing. Glazing. Steam fitting. Heating. Plumbing. Plumbing. Plumbing. Painting. Glazing. Glazing. Steam fitting.	8, 75 43.28 8, 00 1,013.24 36.38 36.38 36.00 146.75 29.74 42.25 143.67 400.79 168.25 9,75 151.82 24.00 .75	2, 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11 65. 17 2. 66 134. 25 12. 96 41 3. 38	298. 50	11, 27 58, 36 8, 00 1, 635, 81 47, 17 3, 68 188, 44 38, 13 47, 99 506, 83 1, 12 20, 00 286, 90 1, 16
Panting. Glasing. Steam fitting. Trimming trees.  Total.  Garnet School, No. 34: Carpentering. Tinning. Painting. Plumbing. Glazing. Steam fitting. Miscellaneous.  Total.  Garfield School, No. 158: Carpentering. Heating. Plumbing. Plumbing. Plumbing. Glazing. Steam fitting. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Gas engine.	8, 75 43, 28 8, 00 1, 013, 24 36, 38 2, 00 146, 75 29, 74 42, 25 143, 67 400, 79 168, 25 9, 75 151, 82 24, 00	2, 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11 65. 17 2. 66 134. 25 12. 66 41 38 26	298. 50	11, 277 58, 36 8, 00 1, 635, 81 47, 177 3, 68 188, 48 38, 13 47, 99 506, 83 1, 12 233, 42 20, 06 286, 07 38, 93 1, 16 1,
Panting Glaxing Steam fitting. Trimming trees  Total.  Garnet School, No. 34: Carpentering. Tinning. Painting. Plumbing. Olazing. Steam fitting. Miscellaneous.  Total.  Garfield School, No. 158: Carpentering. Heating. Plumbing. Glazing. Glazing. Heating. Plumbing. Plumbing. Heating. Plumbing. Plumbing. Plumbing. Plumbing. Painting. Glazing. Steam fitting.	8, 75 43.28 8, 00 1,013.24 36.38 36.38 36.00 146.75 29.74 42.25 143.67 400.79 168.25 9,75 151.82 24.00 .75	2, 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11 65. 17 2. 66 134. 25 12. 96 41 3. 38	298. 50	11, 277 58, 36 8, 00 1, 635, 81 47, 177 3, 68 188, 48 38, 13 47, 99 506, 83 1, 12 233, 42 20, 06 286, 07 38, 93 1, 16 1,
Panting Glasing Steam fitting. Trimming trees  Total.  Garnet School, No. 34: Carpentering. Tinning. Panting. Plumbing. Glazing Steam fitting. Miscellaneous.  Total.  Garfield School, No. 158: Carpentering. Heating. Plumbing. Glazing. Steam fitting. Glazing. Glazing. Glazing. Glazing. Glazing. Steam fitting. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing. Glazing.	8, 75 43.28 8, 00 1,013.24 36.38 36.38 36.00 146.75 29.74 42.25 143.67 400.79 168.25 9,75 151.82 24.00 .75	2, 52 15. 08 622. 57 10. 79 1. 68 41. 73 8. 39 5. 74 63. 66 1. 12 133. 11 65. 17 2. 66 134. 25 12. 66 41 38 26	298.50	11. 27 58. 36 8. 00 1, 635. 81

Class of work.	Labor.	Material.	Contract.	Total.
Garrison School, No. 76:				
Carpentering	\$137.40 .94	\$217.35	\$12,32	\$354.75 13.26
Heating. Plumbing.	9.06	.83	<b>912.04</b>	9.89
Painting	2. 25	.82		3.07
Glazing. Miscellaneous.	23.76	8.26 .74		32.02 .74
Total	173. 41	228.00	12. 32	413.73
Giddings School, No. 63: Carpentering	56.36	9.12		65, 48
Tinning	72.87	114.56		187.43
Heating. Plumbing.	6. 50	.31 1.85	9.30	9.61 8.35
Painting	6.00	1.79		8.35 7.79
Glazing	8, 50	4.88		13.38
Miscellaneous		.74		.74
Total	150. 23	133. 25	9.30	292.78
Good Hope School, No. 73:	52, 94	27 18		90.10
Carpentering. Heating.	27.00	37. 16 9. 38		36.38
Painting	2,00	.97		2.97
Glazing	.75	.20		.95
Total	82.69	47. 71		130.40
a and a bank Mar die				
Grant School, No. 41: Carpentering	53, 21	74, 13	l <b>.</b>	127.34
Tinning	46.58	18.94		65. 52
Dlumbing	3. 19			8.65
PaintingGlazing	8. 50 37. 68	4.92 7.81		13.42
Steam fitting	46.43	11.63		58.06
Miscellaneous		. 74		.74
Total	195. 59	123. 63		319. 22
Greenleaf School, No. 105:				
Carnentering	36.47	146.05		182.52
Tinning	17.71	24.99	23.71	42.70 23.71
Plumbing	7.31	.48		7.79
Dointing	4.00	2.16		6.16
Glazing	.50	11.30		.80 37.78
Gas engine Miscellaneous	26.30	11.48 1.74		1.74
Total	92. 29	187.20	23.71	303.20
Hamilton School, No. 37:	145.04	000		400.00
Tinning	145.34	276.86		422.20
Harrison School, No. 84: Carpentering	8.50	5.14	l	13.64
Tinning	112.31	59.26		171.57
HeatingPainting		·····;·;;·;	3.57	3.57 3.61
Glazing	2.00 2.25	1.61 2.00		4.25
Total	125.06	68.01	3.57	196.64
Hayes School, No. 107:				
Carnentering	88.31	27.53		115.84
Tinning	4.26	2.92	····	7.18
HeatingPlumbing	.25		24.33	24.33 .35
Painting	2.00	.35		.25 2.35
Glazing	11.25	4.42		15.67
Gas engine	26.66	7.06		33.71
Total	132.73	42.27	24. 33	199.33
Henry School, No. 33: Carpentering	193.90	23.93		217.83
Tinning	217.96	133.41		351.37
Plumbing	5.94	.39		6.33
Painting	485.97	72.53		558.50
Glazing	8.75	10.70	01 60	19.45 154.31
Steamfitting Miscellaneous	51.39	11. 42 3. 40	91.50	3.40
Total	963. 91	255.78	91.50	1,311.19
#VME			- 51.00	-,

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Class of work.	Labor.	Material.	Contract.	Total.
Hilton School, No. 115:	•			
Carpentering	\$225.43	\$200.09		\$425.52
Tinning	193.03	242.13		435. 16
Heating	. 19		\$32.08	32. 2
Plumbing	22.50	1.16		23.6
Painting Claring Gas engine	324.06	67.45		391.5
Glazing	7.00	3.23		10.2
Gas engine	4.39	3.69		8.0
Miscellaneous		.74		.7
m 3				
Total	776.60	518. 49	32.08	1,327.1
Hillsdale School, No. 20:			1	
Carpentering	3.25	7.37		10.6
Tinning	3.59			3.5
Total	6.84	7.37		14.2
Inbbard School, No. 119:				
Carpentering	31.90	13.00		44.9
Timbre	322.02	44.66		366.6
Phymbing	10.38	. 13		10.5
Plumbing. Painting	286.30	51.06		227 2
Glazing	24.69	4.74		29. 4
Glazing Gas engine	10.82	16.59		27.4
Miscellaneous.	10.02	1.27		1.2
Total	686.11	131.45		817.5
Iyde School, No. 147:				
Carpentering	133.12	223.61		356.7
Heating	3.00	.05	37.40	40. 4
Plumbing	26.81	3.61		30.4
Painting	97.50	8.25		105.7
	4.50	1.89	<i>.</i>	. 6. 3
Gas engine	2.10		l	2. 1
Gas engine Repairing iron fence and gate.	27.62	4.34		31.9
Total	294.65	241.75	37.40	770 0
	294.00	241.75	87.10	573.8
ackson School, No. 69: Carpentering	18.64	5.96	l	04.6
Tinning	355.34	316.45		24.6 671.7
Heating	1.12	010.30	45.03	46.1
Tinning. Heating. Painting.	4.00	1.09	20.00	5.0
Miscellaneous	4.00	.74		.7
Total	379.10	324. 24	45.03	748.3
efferson School, No. 23:			1	
Carpentering	558.51	499.44		1,057.9
Tinning	371.13	508.06	<b></b> -	879. 1
Plumbing	11.31	3. 19		14.5
Plumbing Painting Glasing Steamfitting	12.00	7.45		19. 4
Glasing	59.56	16.28		75.8
Steamntting	17. 15	2.26		19.4
Miscellaneous		1.74		1.7
Total	1,029.66	1,038.42		2,068.0
ohnson School, No. 95:				
Carpentering	118.04	38, 46	1	156. 8
Tinning	219.17	229.92	1	449. (
Heating	1.50	. 26	23.10	24.8
Plumbing	.50			.5
Painting	31.25	9.63		40.8
Glazing	11.25	2.81	l	14.0
Miscellaneous.		1.74		1.7
(Coto)	201 71	282.82	22 10	687.6
Total	381.71	404. 82	23.10	001.0
ones School, No. 77:			! I	
Carpentering	231.30	89.77	J	321.0
Tinning	20.62	13. 47		34.0
Heating	5. 62	.04	27.10	33. 3
Heating Plumbing	75.08	18.56	1	93. 6
Painting	14.88	4.59 6.78	l	19. 4
Glazing	6.94		[	13. 7
Miscellaneous		4.96		4.8
		\		
Total	354.44	138. 77	27.10	520. 3

· ·	Labor.	Material.	Contract.	Total
nilworth School, No. 128:				
Carpentering	<b>\$</b> 52.43	\$13.66		\$06.00
Tinning	8. 75	5. 70		14.45
Plumbing	84. 19	574. 45		658.64
Painting	15. 25	4. 13		19.3
Glazing	3. 75	1.11		4.90
Motor	4.63	.27	[	4.90
Miscellaneous		2.12		2.11
Total	169.00	601.44		770.44
tcham School, No. 149: Carpentering	6. 13	1		6.13
Tinning	143.84	57.22		201.0
Heating	140.01	12.71		12.7
Plumbing	6.50	.95		7.4
Painting	152.62	48.86		201.4
Glazing	2.50	1.78		4.2
Gas engine	41.70	15.79		57.4
Miscellaneous		.74		7.7
Total	353. 29	138.05		491.3
gdon School, No. 108:				
Carpentering	166. 50	94.99	l	261.6
Tinning	365. 40	462.19		827.3
Heating	303. 40	102.19	\$348.27	348.7
Plumbing	6.50		4010.21	6.5
Painting	250.00	74.17		324.1
Glazing	6.50	6. 57	·····	116
Motor	2.03	.40		20
Miscellaneous	2.00	.74		7.7
Removal of tree.	17.25			17.2
Total	814.18	639.06	348-27	1,801.5
gston School, No. 132:	000 14	201 47		680.6
Carpentering	375.14	305.47		475.93
Tinning	335. 05	140.87	es 10	65.1
Heating		1 00	65.10	5.0
Plumbling	3.06	1.98		156.0
Painting	123. 75	32.31 8.69		18.0
Grading	9.31	o. 00		3.5
Gas engine	3.63	4.03		9.13
Miscellaneous.	5. <b>09</b>	.74		.74
Total	855. 03	494.09	65. 10	1,414.2
nox School, No. 67: Carpentering.	124 10	52.52		186.60
	134. 10 23. 98			100.00
				36.68
Tinning		2.70	27 02	36.68 26.53
Tinning. If eating.	1.50	2.70	27.02	25.33
Tinning.  Heating.  Plumbing.	1.50 20.19	2.70 1.54	27. 02	25.53 21.73
Tinning  Heating Plumbing  Painting	1.50 20.19 13.00	2.70 1.54 3.98	27.02	25.53 21.73 16.98
Tinning.  Heating.  Plumbing.  Painting.  Olazing.	1.50 20.19 13.00 20.78	2.70 1.54 3.98 11.43	27. 02	26. 53 21. 73 16. 95 32. 21
Tinning.  Heating Plumbing. Painting. Glazing. Miscellaneous.	1.50 20.19 13.00 20.78	2.70 1.54 3.98		26. 33 21. 73 16. 96 32. 21 1. 41
Tinning Heating Plumbing Painting Glazing	1.50 20.19 13.00 20.78	2.70 1.54 3.98 11.43	27. 02 675. 05 135. 00	
Tinning. Heating Plumbing. Painting. Glazing. Miscellaneous Removing building.	1.50 20.19 13.00 20.78	2.70 1.54 3.98 11.43 1.41	675. 06	28. 33 21. 73 16. 95 32. 21 1. 41 675. 06 135. 00
Tinning.  Heating Plumbing Painting. Painting. Glazing. Miscellaneous Removing building. Reinforcing wall.	1.50 20.19 13.00 20.78	2.70 1.54 3.98 11.43 1.41	675. 05 135. 00	28. 33 21. 73 16. 95 32. 21 1. 41 675. 06 135. 00
Tinning. If eating. Plumbing. Plumbing. Painting. Glazing. Miscellaneous. Removing building. Reinforcing wall.  Total goln School, No. 18:	1. 50 20. 19 13. 00 20. 78	2.70 1.54 3.98 11.43 1.41 73.58	675. 05 135. 00 837. 07	28. 33 21. 73 16. 99 32. 21 1. 41 675. 06 135. 00 1, 124. 20
Tinning.  Heating. Plumbing. Painting. Glazing.  Miscellaneous. Removing building. Reinforcing wall.  Total.  Coll School, No. 18:	1. 50 20. 19 13. 00 20. 78 213. 55	2.70 1.54 3.98 11.43 1.41 73.58	675. 05 135. 00 837. 07	28. 33 21. 73 16. 99 32. 21 1. 41 675. 05 135. 00 1, 124. 20
Tinning. Hieating. Plumbing. Painting. Glazing. Miscellaneous. Removing building. Reinforcing wall.  Total.  soln School, No. 18: Carpentering. Tinning.	1. 50 20. 19 13. 00 20. 78 213. 55 134. 40 389. 46	2. 70 1. 54 3. 98 11. 43 1. 41 73. 58 53. 69 426. 21	675. 05 135. 00 837. 07	28. 33 21. 73 16. 95 32. 21 1. 41 675. 06 135. 00 1, 124. 20 188. 09 815. 67
Tinning.  Heating. Plumbling. Painting. Glazing.  Miscellaneous. Removing building. Reinforcing wall.  Total.  coln School, No. 18: Carpentering. Tinning. Plumbling.	1. 50 20. 19 13. 00 20. 78 213. 55 213. 55 134. 40 389. 46 14. 81	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34	675.05 135.00 837.07	28. 33 21. 73 16. 98 82. 21 1. 41 675. 06 135. 00 1, 124. 20 188. 99 815. 67 18 18
Tinning.  Heating. Plumbing. Painting.  Painting.  Glazing.  Miscellaneous. Removing building.  Reinforcing wall.  Total	1. 50 20. 19 13. 00 20. 78 213. 55 213. 55 134. 40 389. 46 14. 81 11. 00	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 .34 6.53	675.05 135.00 837.07	28. 33 21. 77 16. 98 32. 21 1. 41 675. 05 135. 00 1, 124. 20 188. 09 815. 67 15. 15
Tinning.  Heating. Plumbing. Painting. Olazing. Miscellaneous. Removing building. Reinforcing wall  Total.  coln School, No. 18: Carpentering. Tlinning. Plumbing. Painting. Painting. Olazing.	1.50 20.19 13.00 20.78 213.55 213.55 134.40 389.46 14.81 11.00 2.25	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34 6.53	675.05 135.00 837.07	28. 33 21. 73 16. 98 82. 21 1. 41 675. 06 135. 00 1, 124. 20 188. 99 815. 67 18 18
Tinning.  It eating.  Plumbing.  Painting.  Glazing.  Miscellaneous.  Removing building.  Reinforcing wall.  Total.  Soln School, No. 18:  Carpentering.  Tinning.  Plumbing.  Painting.  Qlazing.  Steamfitting.	1. 50 20. 19 13. 00 20. 78 213. 55 213. 55 134. 40 389. 46 14. 81 11. 00	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34 6.53	675.05 135.00 837.07	28. 32 21. 73 16. 99 32. 21 1. 41 675. 06 135. 00 1, 124. 20 188. 09 815. 67 14. 15 17. 53 3. 18
Tinning.  Heating. Plumbing. Painting. Glazing.  Miscellaneous. Removing building. Reinforcing wall.  Total.  coln School, No. 18: Carpentering. Tinning. Plumbing. Painting. Glazing. Steamlitting. Miscellaneous.	20. 19 13. 00 20. 78 213. 55 213. 55 134. 40 389. 46 14. 81 11. 00 2. 25 103. 42	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34 6.53 93 27.38 .74	675.05 135.00 837.07	28. 32 21. 77 16. 98 22. 21 1. 41 675. 06 135. 00 1, 124. 20 188. 09 815. 67 14. 15 17. 3. 18 19. 00 74
Tinning Iteating Plumbing Plumbing Painting Glazing Miscellaneous Removing building Reinforcing wall  Total  coln School, No. 18: Carpentering Tinning Plumbing Painting Glazing Steamfitting Miscellaneous  Total	1.50 20.19 13.00 20.78 213.55 213.55 134.40 389.46 14.81 11.00 2.25	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34 6.53 .93 27.38	675.05 135.00 837.07	28. 32 21. 77 16. 82. 21 1. 41 675. 66 135. 00 1, 124. 20 188. 99 815. 67 14. 15 17. 53 3. 119 120. 80
Tinning.  Heating. Plumbing. Painting. Glazing. Miscellaneous. Removing building. Reinforcing wall.  Total.  cooln School, No. 18: Carpentering. Tinning. Plumbing. Painting. Glazing. Steamfitting. Miscellaneous.  Total.	20.19 20.19 13.00 20.78 213.55 213.55 134.40 389.46 14.81 11.00 2.25 103.42	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 6.53 93 27.38 74 515.82	675.05 135.00 837.07	26. 33 21. 77 16. 99 32. 21 1. 44 675. 06 135. 00 1,124. 20 188. 09 815. 15 17. 53 3. 181 120. 80 1,171. 16
Tinning.  Heating. Plumbing Painting. Glazing.  Miscellaneous Removing building.  Total.  coin School, No. 18: Carpentering. Tinning. Plumbing Painting. Glazing. Steamfitting. Miscellaneous Total.  an School, No. 90: Carpentering.	20.19 13.00 20.78 213.55 213.55 134.40 389.46 14.81 11.00 2.25 103.42 17.75	2.70 1.54 3.98 11.43 1.41 73.58 53.69 426.21 34 6.53 93 27.38 .74	675.05 135.00 837.07	26. 33 21. 77 16. 99 32. 21 1. 41 675. 00 135. 00 1, 124. 20 188. 99 815. 67 15. 15 17. 53 3. 18 130. 89 74
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carpentering.  Carpentering.  Tinning.  Plumbing.  Painting.  Glazing.  Grading.  Gas engine.  Repairing handrail and fence.  Miscellaneous.  Total.  Street High School, No. 82:  Carpentering.  Tinning.  Heating.  Plumbing.  Painting.  Glazing.  Steam fitting.  Total.  Street heating plant:  Plumbing.  Steam fitting.  Total.  Street heating blant:  Plumbing.  Steam fitting.  Total.  Street heating blant:  Plumbing.  Steam fitting.  Total.  Street heating blant:  Plumbing.  Steam fitting.  Hiscellaneous.	638. 30 . 75 24. 18 30. 98 8. 56 2. 50 39. 53 22. 63 	194. 44 .33 .19. 57 10. 00 3. 52 .31. 18 1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		832 1. 433 400 122 700 24. 1. 1,029 203, 4,122 722 72. 78. 8,17. 11. 330.
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Tinning. Plumbing Painting. Glazing. Grading. Grading. Gas engine. Repairing handrail and fence. Miscellaneous  Total.  Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing. Plumbing. Steam fitting.  Total.  Street beating plant: Plumbing. Steam fitting. Miscellaneous  Total.  Street heating plant: Plumbing. Steam fitting. Miscellaneous  Total.  Edison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing.	75 24.18 8.56 2.50 39.53 22.63	33 19.57 10.00 3.52 31.18 1.65 1.08 261.77 85.78 2.24 4.19 16.02 3.33 7.00 2.08 120.64		1 43 40 12 2 70 24 1 1 1 1 1 2 2 2 2 3 4 1 2 2 8 17 11 3 3 3 0 2 1 4 2 2 1 4 2 2 1 4 2 2 1 4 2 2 1 4 2 2 1 4 2 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1 4 2 1
Plumbing. Glazing. Glazing. Grading. Gas engine. Repairing handrail and fence. Miscellaneous  Total.  Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting  Street heating plant: Plumbing. Steam fitting  Total.  Street heating plant: Plumbing. Steam fitting  Total.  Glazing.  Steam fitting  Total.  Edison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Pl	24. 18 30. 98 8. 56 2. 50 39. 53 22. 63 	19. 57 10. 00 3. 52 31. 18 1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		43 40 122 2 70 24 1 1,029 203 4 12 72 8 8 17 111 330
Painting Glazing, Glazing, Grading. Gas engine. Repairing handrail and fence. Miscellaneous.  Total.  Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing Painting. Glazing. Steam fitting.  Street heating plant: Plumbing. Steam fitting.  Miscellaneous  Total.  Total.  Street heating plant: Plumbing. Glazing. Heating. Heating. High High High High High High High High	30. 98 8. 56 2. 50 39. 53 22. 63 	10. 00 3. 52 31. 18 1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		40 12 2 70 24: 1. 1,029 203 4. 12 72 8. 17,11. 330.
Glazing. Grading. Gas engine. Repairing handrall and fence. Miscellaneous.  Total.  Street High School, No. 82: Carpentering. Timing. Heating. Plumbing. Glazing. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting.  Total.  Glazing.  Steam fitting.  Total.  Extreet heating plant: Plumbing. Steam fitting.  Total.  Extreet heating plant: Plumbing. Steam fitting.  Hiscellaneous.  Total.  Glazing.  Heating. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Planting. Glazing.	8. 56 2. 50 39. 53 39. 53 22. 63 	3. 52 31. 18 1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 0/2 3. 33 7. 00 2. 08		12. 2 70. 24. 1. 1. 1,029. 203. 4. 12. 72. 8. 17. 11. 330. 2. 142.
Grading. Gas engine. Repairing handrall and fence. Miscellaneous.  Total.  Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing.  Steem fitting.  Total.  Street heating plant: Plumbing. Steam fitting  Miscellaneous.  Total.  adison School, No. 71: Carpentering. Tinning. Heating. Heating. Plumbing. Plumbing. Glazing. Flumbing. Glazing. Flumbing. Glazing. Glazing. Glazing. Glazing.	2. 50 39. 53 22. 63 	31. 18 1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		203. 24. 1. 1,029. 203. 4. 12. 72. 8. 17. 11. 330.
Gas engine. Repairing handrall and fence. Miscellaneous  Total.  Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing Painting. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting Miscellaneous  Total  Carpentering.  Tinning. Heating. Plumbing. Steam fitting.  Miscellaneous  Total  Total  Glazing.  High Glazing.  Glazing.  Glazing.  Glazing.  Glazing.  Glazing.  Glazing.	39. 53 22. 63 	1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08 120. 64		70 24: 1. 1,029 203 4 12: 72: 8 17: 11: 330.
Miscellaneous  Total	22. 63 	1. 65 1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08 120. 64		24. 1,029 203. 4. 12. 72. 8. 17. 11. 330.
Miscellaneous  Total	767. 43 117. 84 2. 72 8. 13 56. 80 5. 00 10. 18 9. 59 210. 26	1. 08 261. 77 85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		1.029. 203. 4. 122. 722. 8. 17. 11. 3300.
Street High School, No. 82: Carpentering. Tinning. Heating Plumbing Painting. Glazing. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting  Miscellaneous  Total  adison School, No. 71: Carpentering Tinning. Heating. Plumbing. Plumbing. Plumbing. Plumbing. Glazing.	767. 43 117. 84 2. 72 8. 13 56. 80 5. 00 10. 18 9. 59 210. 26	85.78 2.24 4.19 16.02 3.33 7.00 2.08		1,029. 203. 4. 12. 72. 8. 17. 11. 330.
Street High School, No. 82: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting.  Total  Street heating plant: Plumbing. Steam fitting.  Miscellaneous  Total  adison School, No. 71: Carpentering. Tinning. Heating. Plumbing Painting. Plumbing Painting. Glazing.	117. 84 2. 72 8. 13 56. 80 5. 00 10. 18 9. 59 210. 26	85. 78 2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		203. 4. 122. 722. 8. 17. 11. 330.
Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting.  Street heating plant: Plumbing. Steam fitting.  Miscellaneous Total.  adison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Plumbing. Plumbing. Glazing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing. Plumbing.	2, 72 8, 13 56, 80 5, 00 10, 18 9, 59 210, 26	2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		4. 12. 72. 8. 17. 11. 330.
Heating Plumbing. Painting Glazing  Total  Street heating plant: Plumbing. Steam fitting  Miscellaneous  Total.  adison School, No. 71: Carpentering Tinning. Heating. Plumbing. Plumbing. Glazing.  Glazing.	2, 72 8, 13 56, 80 5, 00 10, 18 9, 59 210, 26	2. 24 4. 19 16. 02 3. 33 7. 00 2. 08		4. 12. 72. 8. 17. 11. 330.
Heating Plumbing. Painting Glazing  Total  Street heating plant: Plumbing. Steam fitting  Miscellaneous  Total.  adison School, No. 71: Carpentering Tinning. Heating. Plumbing. Plumbing. Glazing.  Glazing.	8. 13 56. 80 5. 00 10. 18 9. 59 210. 26	4. 19 16. 02 3. 33 7. 00 2. 08		12 72 8 17. 11. 330.
Plumbing. Painting Glazing. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting.  Miscellaneous  Total.  adison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Plumbing. Painting. Glazing.	56. 80 5. 00 10. 18 9. 59 210. 26	16, 02 3, 33 7, 00 2, 08 120, 64		72. 8. 17. 11. 330.
Painting Glazing Steam fitting  Total  Street heating plant: Plumbing Steam fitting Miscellaneous  Total  adison School, No. 71: Carpentering Tinning Heating Plumbing Painting Glazing Glazing	5. 00 10. 18 9. 59 210. 26	3, 33 7, 00 2, 08 120, 64		8 17 11 330 2 142
Glaring. Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting Miscellaneous  Total  Carpentering. Tinning. Heating. Plumbing Painting. Glazing.	10. 18 9. 59 210. 26 2. 18	7. 00 2. 08 120. 64		17. 11. 330. 2 142
Steam fitting.  Total.  Street heating plant: Plumbing. Steam fitting Miscellaneous  Total.  adison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Plumbing. Painting. Glazing.	9. 59 210. 26 2. 18	120, 64		330 2 142
Total  Street heating plant: Plumbing Steam fitting Miscellaneous  Total  adison School, No. 71: Carpentering Tinning Heating Plumbing Plumbing Painting Glazing	210. 26	120, 64		330 2 142
Street heating plant: Plumbing. Steam fitting. Miscellaneous.  Total.  adison School, No. 71: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing.	2.18			2 142
Plumbing. Steam fitting Miscellaneous  Total  adison School, No. 71: Carpentering Tinning. Heating. Plumbing Painting Glazing.		45, 49		142
Plumbing Steam fitting Miscellaneous  Total  adison School, No. 71: Carpentering Tinning Heating Plumbing Painting Glazing		45, 49		142
Steam fitting Miscellaneous  Total  Total  Carpentering Tinning Heating Plumbing Painting Glazing	97.17	45, 49		142
Miscellaneous  Total  adison School, No. 71: Carpentering Tinning Heating Plumbing Plumbing Painting Glazing				
adison School, No. 71:  Carpentering. Tinning. Heating. Plumbing. Painting Glazing.		23.10	1	
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Carpentering. Tinning Heating Plumbing Painting Glazing	99.35	08. 59		167.
Tinning. Heating. Plumbing Painting. Glazing	<b>~~~ .</b> ~	05.55	i I	
Heating. Plumbing. Painting. Glazing.	233. 18	65, 57		298
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Painting Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazi	22.58	9 97	4.89	4
Glazing	5.50	3. 27 3. 83		25
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Total	277. 26	78, 28	4. 89	360
agrauder School, No. 62:	12 20	9 22		10
Carpentering	13. 28	3. 33	28,39	16
HeatingPlumbing.	10. 12	2. 79	25.39	28 12
Painting	8.00	4. 15		12
Glazing	4, 25	2, 81	::::: <b>:</b>	17
Total	35, 65	13, 08	28.39	
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aury School, No. 55: Carpentering	122, 14	32, 42		154
Tinning.	73.64	32. 42 164. 97		154 238
Heating.	10.01	101.01	12.79	
Plumbing	14.93		ا قائمتا	12 15
Painting	12.53	6.51		19
Clering	7.50	2. 16	<b> </b>	18
Glazing	29. 31	9.07	l	38
Gas engine				
Total	260.05	215. 97	12. 79	488
cCormick School, No. 16:			1 1	
Carpentering	236. 23	63. 71	1	299
Tinning	50.38	91. 03	[	141
Heating		<b></b>	12,40	12
Plumbing	8, 93	2.57		11
Glazing		2.57 1.79		11 5
Placing pipe rail on terrace steps	4.00	4 40	<u> </u>	20
Total	16. 62	4. 12		491

Counter balances on stage reflectors	\$61. 81 103. 74 64. 76 10. 00 231. 21 15. 00 80. 34 566. 86 24. 22 2. 50 .94 27. 66 154. 11 3. 00 12. 78 18. 94 14. 7. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	\$22. 29  75. 86 20. 26 6. 17 134. 74  78. 44 135. 67  473. 43  2. 45 . 87 . 05  3. 37  66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	\$70.00 18.54	\$84. 16 70. 00 199. 11 85. 00 16. 1 365. 99 15. 0 78. 4 216. 0 1, 128. 8 26. 6 3. 3 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 3, 51. 7 6 3, 51. 7 6 3, 55. 6 6 3, 55. 6 6 3, 55. 6 6 4, 081. 2
Heating. Plumbing. Painting. Glazing Steam fitting. Repairting marble steps. Miscellaneous. Furnish, set and connecting up feed pump.  Total.  Military Road School, No. 8: Carpentering. Painting. Steam fitting.  Total.  Miner School, No. 169: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting. Glazing. Steam fitting. Grading. Counter balances on stage reflectors. Miscellaneous.  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing. Carpentering. Total.  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	103. 74 64. 76 10. 00 231. 21 15. 00 80. 34 566. 86 24. 22 2. 56 . 94 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41	75. 86 20. 26 6. 17 134. 78 44 135. 67 473. 43  2. 45 87 .05 3. 37  66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	18.54	70. 00 199. 1- 85. 00 16. 1- 365. 99 15. 0 78. 4- 216. 0 1, 128. 8 26. 6 3. 3 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 3, 517. 6 3, 517. 6 4, 081. 2
Plumbing. Painting. Glazing Steam fitting. Repairing marble steps Miscellaneous Furnish, set and connecting up feed pump  Total.  Military Road School, No. 8: Carpentering. Painting. Steam fitting.  Miner School, No. 169: Carpentering. Tinning. Heating. Plumbing. Plumbing. Plumbing. Steam fitting. Glazing. Steam fitting.  Trotal  Monroe School, No. 72: Carpentering. Tinning. Heating. Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Tinning. Heating. Plumbing.	64, 76 10, 00 231, 21 15, 00 80, 34 566, 86 24, 22 2, 50 94 27, 66 154, 11 3, 00 12, 78 18, 94 147, 06 6, 19 49, 48 2, 800, 92 11, 41 3, 203, 89	20. 26 6. 17 134. 74 78. 44 135. 67 473. 43 2. 45 .87 .05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66	18.54	199, 1- 85, 0 16, 1 1365, 9 15, 0 78, 4 216, 0 1, 128, 8 26, 6 3, 3 -9 31, 0 220, 3 5, 2 21, 4 31, 4 191, 4 8, 0 3, 517, 0 25, 0 3, 6 4, 081, 2
Painting Glazing Steam fitting Repairing marble steps Miscellaneous Furnish, set and connecting up feed pump  Total  Military Road School, No. 8: Carpentering Painting Steam fitting  Total  Miner School, No. 169: Carpentering Tinning Heating Plumbing Painting Glazing Steam fitting  Total  Miner School, No. 169: Carpentering Tinning Glazing Steam fitting Total  Monroe School, No. 72: Carpentering Tinning Heating Monroe School, No. 72: Carpentering Tinning Heating Plumbing	64, 76 10, 00 231, 21 15, 00 80, 34 566, 86 24, 22 2, 50 94 27, 66 154, 11 3, 00 12, 78 18, 94 147, 06 6, 19 49, 48 2, 800, 92 11, 41 3, 203, 89	20. 26 6. 17 134. 74 78. 44 135. 67 473. 43 2. 45 .87 .05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		85.0 16.1 365.9 15.0 78.4 216.0 1.1 128.8 26.6 3.3 3.1.0 220.3 5.2 21.4 191.4 8.0 3.57.6 3.57.6 3.6 4,081.2
Glazing Steam fitting Repairing marble steps Miscellaneous. Furnish, set and connecting up feed pump  Total  Military Road School, No. 8: Carpentering. Painting. Steam fitting  Total  Miner School, No. 169: Carpentering. Tinning. Heating Plumbing. Painting. Steam fitting Glazing. Steam fitting Glazing. Steam fitting Grading Counter balances on stage reflectors. Miscellaneous.  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Caupentering. Tinning. Heating. Plumbing.	10. 00 231. 21 15. 00 80. 34 566. 86 24. 22 2. 59 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41	6. 17 134. 74 78. 44 135. 67 473. 43  2. 45 . 87 . 05 3. 37  66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 1. 85 1. 85 1. 85 3. 66 877. 39	88.54	16. 1 365. 9 15. 0 78. 4 216. 0 1, 128. 8 26. 6 3. 3 3. 9 31. 0 220. 3 5. 2 21. 4 31. 4 8. 0 3, 517. 6 3, 517. 6 4, 081. 2
Steam fitting. Repairing marble steps. Miscellaneous Furnish, set and connecting up feed pump  Total  Military Road School, No. 8: Carpentering Painting. Steam fitting.  Total  Miner School, No. 169: Carpentering. Tinuing. Heating. Plumbing. Plumbing. Plumbing. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Grading. Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fitting Steam fittin	231. 21 15. 00 80. 34 566. 86 24. 22 2. 50 . 94 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41	134. 74  78. 44 135. 67  473. 43  2. 45 .87 .05  3. 37  66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	88.54	365. 9 15. 0 78. 4 216. 0 1, 128. 8 26. 6 3. 3 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3, 517. 0 25. 0 3. 6 4, 081. 2
Repairing marble steps Miscellaneous Furnish, set and connecting up feed pump  Total  Military Road School, No. 8: Carpentering Painting Steam fitting  Total  Miner School, No. 169: Carpentering Tinuing Heating Plumbing Painting Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Honroe School, No. 72: Carpentering Tinning Heating Plumbing	15. 00 80. 34 566. 86 24. 22 2. 59 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	78. 44 135. 67 473. 43 2. 45 . 87 . 05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	88.54	15. 0 78. 4 216. 0 1, 128. 8 26. 6 3. 3 9 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 3, 51. 0 25. 0 3. 6 4, 081. 2
Miscellaneous Furnish, set and connecting up feed pump Total  Military Road School, No. 8: Carpentering Painting Steam fitting  Total  Miner School, No. 169: Carpentering Tinning Heating Plumbing Painting Steam fitting Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Cauphing Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	80. 34 566. 86 24. 22 2. 50 . 94 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	135. 67 473. 43 2. 45 .87 .05 3. 37 66. 24 2. 23 8. 20 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	88,54	78. 4 216. 0 1, 128. 8 26. 6 3. 3 . 9 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3, 517. 0 25. 0 3. 6 4, 081. 2
Furnish, set and connecting up feed pump  Total  Military Road School, No. 8: Carpentering Painting Steam fitting  Total  Miner School, No. 169: Carpentering Tluning Heating Plumbing. Painting. Olazing Steam fitting Grading. Counter balances on stage reflectors. Miscellaneous Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Carpentering. Total	24. 22 2. 50 . 94 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	135. 67 473. 43 2. 45 .87 .05 3. 37 66. 24 2. 23 8. 20 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39	88.54	216.0 1, 128.8 26.6 3.3 31.0 220.3 5.2 21.4 31.4 191.4 8.0 3,517.0 3.6 4,081.2
Military Road School, No. 8: Carpentering Painting. Steam fitting.  Total.  Miner School, No. 169: Carpentering Tinning. Heating. Plumbing Painting. Steam fitting. Grading. Counter balances on stage reflectors. Miscellaneous  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Carpentering. Tinning. Heating. Plumbing.	24. 22 2. 50 . 94 27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	2. 45 .87 .05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66	88.54	26. 6 3. 3 . 9 31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3, 517. 0 25. 0 3. 6
Carpentering Painting Steam fitting  Total  Miner School, No. 169: Carpentering Tinning Heating. Plumbing. Painting Glazing Steam fitting Grading. Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating. Plumbing	2,50 .94 27,66 154,11 3,00 12,78 18,94 147,06 6,19 49,48 2,800,92 11,41 3,203,89	. 87 . 05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		3.3 31.0 220.3 5.2 21.4 31.4 31.9 191.4 8.0 57.6 3,517.0 25.0 3,64,081.2
Carpentering Painting. Steam fitting.  Total  Miner School, No. 169: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting. Grading. Counter balances on stage reflectors. Miscellaneous.  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	2,50 .94 27,66 154,11 3,00 12,78 18,94 147,06 6,19 49,48 2,800,92 11,41 3,203,89	. 87 . 05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		3.3 31.0 220.3 5.2 21.4 31.4 31.9 191.4 8.0 57.6 3,517.0 25.0 3,64,081.2
Painting. Steam fitting.  Total.  Miner School, No. 169: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing Steam fitting Grading. Counter balances on stage reflectors. Miscellaneous.  Total.  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41	. 05 3. 37 66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39		.9 31.0 220.3 5.2 21.4 31.4 191.4 8.0 57.6 3,517.0 3.6 4,081.2
Total.  Miner School, No. 169: Carpentering. Tinning. Heating. Plumbing. Painting. Glazing. Steam fitting. Grading. Counter balances on stage reflectors. Miscellaneous.  Total	27. 66 154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	3.37  66. 24 2.23 8.62 12.46 44.37 1.85 8.20 716.17 13.59 3.66		31. 0 220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3,517. 0 25. 0 3. 6 4,081. 2
Miner School, No. 169: Carpentering Tinning Heating. Plumbing. Painting. Glazing Steam fitting Grading. Counter balances on stage reflectors. Miscellaneous  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	154. 11 3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	66. 24 2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		220. 3 5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3,517. 0 25. 0 3. 6
Carpentering Tinning Heating Plumbing Plumbing Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3, 517. 0 25. 0 3. 6
Carpentering Tinning Heating Plumbing Plumbing Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	2. 23 8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		5. 2 21. 4 31. 4 191. 4 8. 0 57. 6 3, 517. 0 25. 0 3. 6
Tinning Heating Plumbing Painting Clazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	3. 00 12. 78 18. 94 147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	8. 62 12. 46 44. 37 1. 85 8. 20 716. 17 13. 59 3. 66		21. 4 31. 4 191. 4 8. 0 57. 6 3,517. 0 25. 0 3. 6
Heating. Plumbing. Painting. Glazing Steam fitting. Grading. Counter balances on stage reflectors. Miscellaneous.  Total.  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	18, 94 147, 06 6, 19 49, 48 2, 800, 92 11, 41 	12.46 44.37 1.85 8.20 716.17 13.59 3.66		31. 4 191. 4 8. 0 57. 6 3,517. 0 25. 0 3. 6
Painting Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	147. 06 6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	44. 37 1. 85 8. 20 716. 17 13. 59 3. 66 877. 39		191. 4 8. 0 57. 6 3,517. 0 25. 0 3. 6 4,081. 2
Glazing Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	6. 19 49. 48 2, 800. 92 11. 41 3, 203. 89	1. 85 8. 20 716. 17 13. 59 3. 66 877. 39		8.0 57.6 3,517.0 25.0 3.6 4,081.2
Steam fitting Grading Counter balances on stage reflectors Miscellaneous  Total  Monroe School, No. 72: Carpentering Tinning Heating Plumbing	49, 48 2, 800, 92 11, 41 3, 203, 89	8. 20 716. 17 13. 59 3. 66 877. 39		57.6 3,517.0 25.0 3.6 4,081.2
Grading. Counter balances on stage reflectors. Miscellaneous.  Total.  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	2,800.92 11.41 3,203.89	716. 17 13. 59 3. 66 877. 39		3,517.0 25.0 3.6 4,081.2
Counter balances on stage reflectors.  Miscellaneous.  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	3, 203. 89 48, 12	13. 59 3. 66 877. 39		25.0 3.6 4,081.2
Miscellaneous.  Total  Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	3, 203. 89	3. 66 877. 39		3. 6 4, 081. 2
Total	48.12	877. 39		4, 081. 2
Monroe School, No. 72: Carpentering. Tinning. Heating. Plumbing.	48.12			
Carpentering. Tinning. Heating. Plumbing.		0.49		
Timing. Heating. Plumbing.		0.49		п
Heating Plumbing	73. 13			57.5
Plumbing		21. 72		94.8
	. 94	25. 16	539.48	565.5
	30.03	7.68		37.7
Glazing	61. 88 38. 67	7.79		69. 6 50. 6
Motor	17. 80	11. 98 2. 28		20.0
Miscellaneous		3.82		3.8
Total	270.57	89. 85	539. 49	899.9
Montgomery School, No. 140:				
Tinning	20.84	. 92	l	21.7
Heating			55, 02	55.0
Plumbing	. 81			. 8
Painting	404.39	72.18		476.5
Glazing	2.50	4. 22		6.7
Gas engine	6. 69	.74		6. 6 . 7
Total	435. 23	78.06	55. 02	568.3
Morgan School, No. 125:		i	1 1	
Carpentering	349.67	181.57		531. 2
Tinning	713. 15	246.89		960.0
Heating	•••••	1.67	20.30	21.97
Plumbing	48, 72	7.11		55. 83 350. 42
Painting Glazing	263. 50 4. 25	86.92		9.37
Grading	6. 31	5. 12		6. 31
Gas engine.	32. 14	28.40		60.54
Miscellaneous		1.45		1.45
Total	1,417.74	559, 13	20.30	1, 997. 17
Morse School, No. 44:				
Carpentering.	40.10	1	1	40.10
Tinning	63.66	152. 34	1	216.00
Heating	23.06	75. 81	7.67	106.54
Plumbing	15. 44	1.58	1.07	17.02
Painting	3.50	4.44		7.94
Glazing	33.00	7.55		40.55
Gas engine	8. 18	1.50		9.68
Miscellaneous		3.48		3. 48
Total	186. 94	246, 70	7.67	441.31

Class of work.	Labor.	Material.	Contract.	Total.
Mott School, No. 153	•mu m	<b>600.14</b>		eno: 0e
CarpenteringTinning	\$224.92 .72	\$96.14 2.03		\$321.06 2.75
Heating	383.86	96.68		480, 54
Plumbing	14.56	4.09		18.65
Painting	17.75	9.09		26.84
Glazing Gas engine	4.25	1.12		5.37
Gas engine	33. 28	14. 26		47. 54
Total	679.34	223. 41		902.75
Old Mott School, No. 40: Carpentering	15. 22	15. 61		30. 83
Orr School, No. 122:				
Carpentering	9, 12	4.81	l	13.93
Tinning	14.25	.56		14.81
Heating			\$14.18	14, 18
Plumbing	3. 25	<b></b>		3. 25
Painting Glasing	1.00	. 35		1.35
Glasing Miscellaneous	2. 25	1.38 1.74		3. 63 1. 74
Total	29. 87	8.84	14. 18	52. 89
O Street Manual Training School:				
Carpentering.	28, 75	75. 40 1. 74		104. 15
Plumbing	17.06	1.74		18, 80
Painting	16.75	7.73		24. 48
Glazing Steam fitting	1. 25 2, 40	1.15 1.88	• • • • • • • • • • • • • • • • • • •	2. 40 4. 28
	66, 21	87.90		154, 11
Total	00, 21	87.80		134, 11
Park View portables:	100 07		1	107 57
Carpentering	108.27	89.30	•••••	197.57
Tinning	5. 71	2. 45		8, 16 1, 29
Plumbing	. 31 104, 24	. 98 59. 39	•	163.63
Painting	2.00	. 52		2 52
Glazing	5. 25	4. 46		2. 52 9. 71
Total	225. 78	157.10		382. 88
Patterson School, No. 93:				
Carpentering	118, 84	207.33		326. 17
Heating	1.60		14. 26	15. 86
Plumbing	1.63			1.63
Painting	48, 75	8.03		56.78
Glazing	24.50	5. 75		30. 25
Miscellaneous	• • • • • • • • • • • • • • • • • • • •	. 74	••••••	.74
Total	195. 32	221.85	14.26	431. 43
Payne School, No. 98:	ŀ	l .	1	
Carpentering	87.87	59. 23		147. 10
Tinning	6.75	4.05		10.80
Heating. Plumbing.	<u></u>		23.48	23.48
Pumbing	10.44	3.23		13.67
PaintingGlazing	5.00 11.00	2.55 7.73		7.55 18.73
Gas engine.	66.59	17. 43		84.02
Miscellaneous	000	1. 27		1.27
Miscellaneous Repairing area rail	4.44	.06		4.50
Total	192.09	95. 55	23.48	311.12
Peabody School, No. 31:				
Carpentering	181.61	48.89	!	230.50
Tinning.	8.50	3.50		12.00
Plumbing.	46, 44	53.31	1	99.75
Painting	10. 25	5. 24	1	15. 49
Glazing	8. 50	5. 18	1	13.68
Steam fitting	32. 37	4.77		37.14
Miscellaneous		1.74		1.74
Total	287.67	122.63		410.30

Class of work.	Labor.	Material.	Contract.	Total
etworth School, No. 131:				
Carpentering	\$1,244.90	\$245.69	! (	\$1,490
Tinning	259.65	116.93		370
Heating			\$20.32	2
Plumbing	12,06	37.76		6
Painting	25. 47	18.07		4
Glazing	39. 75	14.90	ļ <b></b> .	5
Gas engine	11.81	9. 44		2
Total	1,593.64	442. 79	20. 32	2,05
helps School, No. 57:				_
Carpentering	35, 00	9.74	l	. 4
Tinning	23.00	12.78		. 3
Heating		25, 58		2
Plumbing	7. 31	1.11		1
Painting	6.50	3.80		. 1
Glazing	25.50	8.74		. 1
Pointing up stone base	8.00	. 24		
Repairing handrails	7. 50	2. 33		1
Total	112.81	64. 32		17
hillips School, No. 81:				1
Carpentering	25. 25	4.32	<b> </b>	. 3
Tinning	53.80	13.81	····	
Heating.	2.72	. 85	29.76	1 3
Plumbing	10.44	26.60		- 1
Painting	.75	1.34		
Glazing	2.50	1.29		·
Total	95. 46	48. 21	29. 76	1
ierce School, No. 94:				
Carpentering	136.05	65.58		. 3
Tinning.	6. 31	l		.
Heating			12.78	1 1
Painting	5.50	5. 13	l	1
Glasing	1.25	.37		·l
Total	149. 11	71.08	12.78	2
olk School, No. 86:				_
Carpentering	309.03	134.24		. 4
Tinning	15.50	4.21		.) 1
Heating		l	39.60	1 3
Plumbing	47.68	21.59		Ji
Painting	20.31	5.98		1 :
Glazing	22.00	5.56		) 2
Repairing area rail	4.12	.01		1
Miscellaneous		3.22		1
Total	418.64	174.81	39.60	63
otomac (old):	710.01	111101	33.00	<u> </u>
Carpentering	117.72	57.07	l	17
Tinning	20. 25	25. 07	1	1 7
Painting	21. 25	4.86	1	1 2
Glazing	5.00	4.23		
Total	164. 22	91. 23		25
owell School, No. 157:				-
Carpentering	99.21	31.82	<b></b>	11
Tinning	69. 52	23. 81		1
Heating	1.06	1.94	1.16	Ι.
Plumbing	29. 24	1.51	l	3
Painting	2.75	2.51		
Glazing	8.50	6.54		] 1
Motor	. 41			
Miscellaneous		.35		Ι.
Pointing up stone steps	9. 91	. 79		1
Total	220. 60	69. 27	1.16	29
andall School, No. 28: Carpentering	136, 08	100.04		23
Tinning	93. 87	105.39		196
Heating.	3.66	.39	12.94	i
Plumbing	11.12	1.15	1	l i
Painting	24. 25	9.94		Į į
	12.75	3.40		l ie
()IRZINZ		.82		
Glazing Miscellaneous				
Miscellaneous.  Total.	281. 73	221.13	12.94	51

Class of work.	Labor.	Material.	Contract.	Total.
andle Highlands School, No. 166;		<del></del>		
Carpentering	\$14.19	80.45		\$14.
Tinning.	6. 25	1.48		7.
Heating. Plumbing		1 20	\$36.04	36.
Painting	6. 50 2. 00	1 20 1.81		7. 1 8. 1
Ges engine and motor	2.85	.89		3.
Repairing handrails	8.75			8.
Total	85. 54	5. 83	36, 04	77.
	30.04	0.60	30.04	
no School, No. 139:	97.00	26,92	1 1	84
Heating	37. 22 . 75	25.74		64. 26.
Phymbing	13. 76	16.24		30.
Painting	3.00	. 52		3.
Painting Glazing	. 75	1.09		Ĩ.
Total	55. 48	70. 51		125.
	00. 10	10.01		120.
servoir School, No. 110:  Carpentering	84, 90	108.14	1 1	192.
Tinning	71, 66	8.85		80.
Heating	106, 59	391.82		498.
Painting.	131.50	10.67		142.
Glazing	. 50	.40		•
Miscellaneous		.74		
Total	395, 05	520, 62		915.
ss School, No. 146;				
Carpentering.	4.88	2.05	1	6.
Plumbing.	18. 12	5.12		23.
Painting	4.00	1.77		5.
Glazing	3. 25	1.68		4.
Reset engine	22, 64	17. 22		39.
Total	52.89	27.84		80.
ton School, No. 22: Carpentering	112, 93	13. 86		126.
Plumbing	25. 61	1.06		26.
Painting	5. 25	3.03	1	<b>~</b> 8.
Glazing	7.00	3.56		10.
Steam fitting	72, 36	46.18	161.00	279.
Total	223. 15	67. 69	161.00	451.
nmons School, No. 134:				
Carpentering	185. 78	6. 19		·191.
Tinning	114.06	100. 19		223.
Plumbing	25. 28	3.97		29.
Painting	32, 25 5, 63	15. 79 1, 86	l::::::	48. 7.
Total	363.00	137.00		500.
ter School, No. 80: Carpentering.	108. 50	34.93	1 1	143.
Tinning.	128. 23	84.10		212
Plumbing	1, 93	. 17		2
Painting	274.87	52.10		326
Glazing	3, 00	3.06		6.
Miscelianeous		2, 41		2
Total	516. 53	176. 77		693.
rt Slocum School, No. 11: Carpentering	40 00	30. 59		77
Tinning	46, 88 12, 04	3.86		77. 15.
Painting	1.00	.52		ĩ
Glazing	. 25	.10		-
Total	60. 17	35.07		95.
nallwood School, No. 64:				
Carpentering	112.86	44.59		157.
Tinning.	97.28	153, 46		250.
Heating	94 44		14. 18	14.
PlumbingPainting	34, 44 199, 28	20.01 34.18		54. <b>23</b> 3.
Glazing	2.00	75		233.
Steam fitting		.38		-
		1, 74		1.
Miscellaneous.	•••••	1		
Miscellaneous.  Total	445, 86	255. 11	14.18	715

	Labor.	Material.	Contract.	Total.				
Stanton School, No. 138:								
Carpentering	. \$6.50	\$2.45		\$8.95				
Heating. Plumbing.	9.00	.82	\$23.25	23. 25 9. 82				
Painting	.50	.74	[	1,24				
[iscellaneous		2,41		2.41				
Total	16.00	6, 42	23. 25	45.67				
Smothers School, No. 56: Carpentering.	76, 26	43, 32		119.58				
Tinning.	72, 43	23.30		95.73				
Painting	3.00	2.02	[	5.02				
Glazing	.50	.45		.95				
Miscellaneous		.74	• • • • • • • • • • • • • • • • • • • •	.74				
Total	152, 19	69.83		222,02				
Stevens School, No. 97:								
Carpentering	80,72	202.48		283. 20				
Plumbing	22, 19 10, 50	2.66 5.89		24. 85 16. 39				
Glazing	4.50	5.21		9.71				
Steamfitting	41.02	13.06		54.08				
Miscellaneous	• • • • • • • • • • • • • • • • • • • •	. 21		. 21				
Total	158, 93	229. 51		388, 44				
Sumner School, No. 19:								
Carpentering	57. 62	26.63		84.25				
Tinning	25.25	13.50		38.75 31.17				
Plumbing Painting	29.54 4.00	1.63 2.47		6.47				
Glazing	3.50	4.47		7.97				
Steam fitting Placing weight on fire escape	142. 43	53. 14	221. 82	416.89				
Placing weight on fire escape	1. 13	. 68	•••••	1.81				
Total	263, 47	102, 52	221. 32	587.31				
Syphax School, No. 126:								
Carpentering Tinning	133.86 23,93	106. 85 21. 46		240.71 45.39				
Plumbing	21, 12	. 93		22.05				
Painting	7.00	2.16		9. 16				
Glazing.	4.50	1.14		5.64				
Steam fitting. Miscellaneous.	30.48	4.94 .74	129. 80	165. 22 . 74				
Total	220, 89	138, 22	129, 80	488, 91				
Takoma School, No. 118:								
Carpentering	8, 94	5.71		14.65				
Tinning. Heating.	100.90	167. 66	2, 17	268.56 2.17				
Hosting	17.87		2,17	17.87				
Plumbing	4.00	1 40		5. 42				
PlumbingPainting		1.42						
Painting Glazing	28, 25	9. 41		37, 66 17, 90				
Painting Glazing Gas engine	28, 25 7, 55	9. 41 10. 25		17, 80				
Painting Glazing Gas engine Total	28, 25	9. 41						
Painting Glazing Gas engine Total Taylor School, No. 88:	28, 25 7, 55 167, 51	9, 41 10, 25 194, 45	2. 17	17. 80 364. 13				
Painting Glazing Gas engine Total	28, 25 7, 55	9. 41 10. 25		17.80 364.13 110.41 68.46				
Painting Glazing Gas engine Total  Total  Carpentering Tinning Tinning Total	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79	2. 17	17.80 364.13 110.41 68.46 20.91				
Painting Glazing Gas engine  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14	2.17	17, 80 364, 13 110, 41 68, 46 20, 91 9, 64				
Painting Glazing Gas engine Total  Total  Carpentering Tinning Tinning Total	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79	2. 17	17.80 364.13 110.41 68.46 20.91				
Painting Glazing Gas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Glazing	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 9, 50	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14 4. 28	2. 17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 78				
Painting Glazing Gas engine  Total  Total  Taylor School, No. 88:  Carpentering Tinning Plumbing Painting Glazing Grading  Total	28. 25 7. 55 167. 51 81. 44 48. 95 17. 12 5. 50 9. 50 6. 78	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14 4. 28 2. 65	2. 17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 78 9. 43				
Painting Glazing Gas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting. Glazing Grading.  Total  Tenley School, No. 102:	28. 25 7. 55 167. 51 81. 44 48. 95 17. 12 5. 50 9. 50 6. 78	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14 4. 28 2. 65 63. 34	2. 17	17, 80 364, 13 110, 41 68, 46 20, 91 9, 64 13, 78 9, 43 232, 63				
Painting Glazing Gas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading  Total  Tenley School, No. 102: Carpentering Tinning	28. 25 7. 55 167. 51 81. 44 48. 95 17. 12 5. 50 9. 50 6. 78 169. 29 42. 59 12. 38	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14 4. 28 2. 65 63. 34 25. 70 6. 38	2. 17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 78 9. 43 232. 63 68. 29 18. 76				
Painting Glazing Glas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading  Total  Total  Tenley School, No. 102: Carpentering Tinning Tinning	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 6, 78 169, 29 42, 59 12, 38 21, 13	9. 41 10. 25 194. 45 28. 97 19. 51 3. 79 4. 14 4. 28 2. 65 63. 34 25. 70 6. 38 13. 16	2.17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 78 9. 43 232. 63 68. 29 18. 76 34. 29				
Painting Glazing Glazing Gas engine  Total  Total  Taylor School, No. 88:  Carpentering Tinning Plumbing Painting Glazing Grading  Total  Tenley School, No. 102:  Carpentering Tinning Plumbing Painting Painting Painting	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 9, 50 6, 78 169, 29 42, 59 12, 38 21, 13 6, 00	9, 41 10, 25 194, 45 28, 97 19, 51 3, 79 4, 14 4, 28 2, 65 63, 34 25, 70 6, 38 13, 16 2, 08	2. 17	17, 80 364, 13 110, 41 68, 46 20, 91 9, 64 13, 78 9, 43 232, 63 68, 29 18, 76 34, 29 8, 06				
Painting Glazing Glas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading  Total  Total  Tenley School, No. 102: Carpentering Tinning Tinning	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 6, 78 169, 29 42, 59 12, 38 21, 13	9, 41 10, 25 194, 45 28, 97 19, 51 3, 79 4, 14 4, 28 2, 65 63, 34 25, 70 6, 38 13, 16 2, 08 . 76	2.17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 73 9. 43 232. 63 68. 29 18. 76 34. 29 8. 08 2. 51 60. 59				
Painting Glazing Glazing Gas engine  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading.  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Plumbing Painting Glazing Grading Grading  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Plumbing Plumbing Glazing Glazing Steam fitting Grading	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 6, 78 169, 29 42, 59 12, 38 21, 13 6, 00 1, 75	9, 41 10, 25 194, 45 28, 97 19, 51 3, 79 4, 14 4, 28 2, 65 63, 34 25, 70 6, 38 13, 16 2, 08 10, 19	2. 17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 73 9. 43 232. 63 232. 63 68. 29 8. 88 2. 51 60. 59 34. 93				
Painting Glazing Gas engine  Total  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Painting Glazing Grading Steam fitting Grading Grading Grading Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Glazing Grading	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 9, 50 6, 78 169, 29 42, 59 12, 38 21, 13 6, 00 1, 75 50, 40 334, 93	9, 41 10, 25 194, 45 28, 97 19, 51 3, 79 4, 14 4, 28 2, 65 63, 34 25, 70 6, 38 13, 16 2, 08 1, 08 10, 19	2.17	17. 80 364. 13 110. 41 68. 46 20. 91 9. 64 13. 73 9. 43 232. 63 68. 29 18. 76 34. 29 8. 08 2. 51 60. 59				
Painting Glazing Glazing Gas engine  Total  Taylor School, No. 88: Carpentering Tinning Plumbing Painting Glazing Grading.  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Plumbing Painting Glazing Grading Grading  Total  Tenley School, No. 102: Carpentering Tinning Plumbing Plumbing Plumbing Glazing Glazing Steam fitting Grading	28, 25 7, 55 167, 51 81, 44 48, 95 17, 12 5, 50 9, 50 6, 78 169, 29 12, 38 21, 13 6, 00 1, 75 50, 40	9, 41 10, 25 194, 45 28, 97 19, 51 3, 79 4, 14 4, 28 2, 65 63, 34 25, 70 6, 38 13, 16 2, 08 10, 19	2. 17	17, 80 364, 13 110, 41 68, 45 20, 91 9, 64 13, 78 9, 43 232, 63 68, 29 18, 76 34, 29 8, 08 2, 51 60, 59 334, 63 1, 74 1, 74 1, 74 1, 75 1, lass of work.	Labor.	Material.	Contract.	Total.
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Thomson School, No. 156:								
Carpentering.	\$25.57	\$6.82		\$32.39				
Heating	<u></u> . <u></u> .		\$265.26	265. 26				
Plumbing	29.62	6. 76		37. 22				
Painting Glazing	208.50 24.25	47. 15 20. 14		255.65 44.39				
Motor	2.03	1.63		3.66				
Motor. Put up 8 wire window guards	2.00	1.00	48.00	48.00				
Miscellaneous		5. 13		5. 13				
Total	289.97	88.47	313. 26	691.70				
Threlkeld School, No. 14: Carpentering	94. 63	20. 10		114. 78				
Tinning	48.65	17.97		66, 62				
Plumbing	8.12	. 30		8. 42				
Painting	14.75	3.90		18.6				
Glazing	4.00	1.72		5. 72				
Total	170. 15	43. 99		214. 14				
oner School, No. 114:								
Carpentering		.70	[ ]	.70				
Tinning	6.84	.11		6.9				
Heating	<u>-</u>		23.95	23.9				
Plumbing	3. 25			3. 24 4. 04				
Painting	3.00	1.05		3. 19				
Glazing Gas engine	2.75 23.82	. 44 14. 85		38.6				
		<del></del>						
Total	39.66	17. 15	23.95	80.70				
owers School, No. 59: Carpentering	113.98	18.60	1 1	132. 5				
Tinning.	113.05	113. 26		226.3				
Plumbing	27.62	110.20	:::::	27.6				
Painting	266.50	50.74		317. 2				
Glasing.	15. 00	5. 21		20. 2				
Total	536. 15	187. 81		723.9				
wining School, No. 45:								
Carpentering	175. 95	240.61		416.5				
Tinning	15. 22	1.39		16.6				
Heating Plumbing	7.75	.38	16.97	16. 9 8. 1				
Painting	358.04	57.02		415. 0				
Claring	28.75	15.93		44.6				
Gerengine	.41			.4				
Put guard rail at top of steps	11.06	.48		11.5				
Miscellaneous		3.87		3.8				
Total	<i>5</i> 97. 18	319.68	16. <b>97</b>	933. 8				
yler School, No. 83:				00.7				
Carpentering	32.50	4.21		36. 7				
TinningPlumbing		3. 16		3. 1 15. 1				
Painting	13.00 125.50	2. 16 23. 39		148.8				
Glazing	7. 25	3.84		11.0				
Miscellaneous		.74		. 7				
Total	178. 25	37. 50		215. 7				
an Buren School, No. 87:								
Carpentering	228. 57	85.74		314.3				
Tinning	17.44	13. 41		30.8				
Heating	12.59	4.05		16.6				
Plumbing	32. 69 5. 50	10. 27 3. 99		42. 9 9. 4				
Glazing	3.00	.73		3. 7				
Steam fitting	10.41	1		10. 4				
Krect fron fence.	61.19	1.69		62. 8				
Repairing hand rails	6. 19	2. 29		8.4				
Total	377. 58	122. 17		499. 7				
an Ness School, No. 150:								
Carpentering	42.18	5.66		47.8				
Tinning	4.50	2.23	[	6.7				
Plumhing	. 81			. 8				
Painting	51.25	16.81		68.0 2.8				
Glazing Gas engine	2.00 3.31	. 80 4. 95	·····	2. o 8. 2				
Total	104.05	30. 45		134.5				

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Class of work.	Labor.	Material.	Contract.	Total.
Wallach School, No. 4:				
Carpentering	\$89.47	\$18.80		\$108.27
Tinning	158. 47	68.34		226. 81
PlumbingPainting	8.94	.49		9.43
Glazing	8.00 28.00	5.20 7.41		13. 20 35. 41
Steam fitting.	25.95	3.41		29.36
Miscellaneous		74	1	.74
Total	318. 83	104.39		423. 22
Webb School, No. 121:				
Carpentering	9.31	4.57		13.88
Tinning. Plumbing.	16.21	2.27		18.48
Painting	21.98 6.00	13.07 5.05		35.05 11.05
Glazing	5.50	3.24		8.74
Gas engine	13.52	9.10		22.62
Total	72.52	37.30		109.82
Webster School, No. 51:				
Carpentering	13.50	9.70	1	23.20
Tinning	37.97	17.77		55.74
Heating		····; <u>;</u> ·: <u>:</u> -	<b>\$</b> 6,440.00	6,440.00
PlumbingPainting	114.01	46.12		160.13
Glazing	6.00 51.00	3. 24 7. 35		9. 24 58. 35
Steam fitting	218.75	.49		219.24
Miscellaneous		1.74		1.74
Total	441.23	86.41	6,440.00	6, 967. 64
Weightman School, No. 54:				
Carpentering	77.17	23.83		101.00
Tinning	29.94	6.83	<b> </b>	36.77
HeatingPlumbing.	30.49	2.84		33.33 14.59
Painting	12.81 4.00	1.78 1.77		5.77
Glazing	23.75	5.97		29.73
Gas engine.	24.06	10.54		34.60
Miscellaneous		1.74		1.74
Total	202. 22	55.30		257.52
Western High School, No. 117:	000 40			
Remove steam engines, traps, pumps, blowers, etc	278.47		27.50	305.97
pipes from basement	327. 27 1. 31	1.36		328.63 1.31
Total	607.05	1.36	27. 50	635.91
			21.00	
West School, No. 163: Carpentering.	129.87	34.73	l	164.60
Tinning	34.75	3.85		38.60
Plumbing	46.86	11.27		58. 13
Painting	16.00	16.14		32.14
Glazing	2.00	. 48		2.48
Gas engine and motor.  Miscellaneous (repairing handrail)	16. 17	3.09		19.26 1.63
Miscellaneous (repairing handrall),	1.63			
Total	247.28	69.56		316.84
Wheatley School, No. 136:				
Carpentering	41.87	29.85		71.72
Tinning.	27.06	10.44		37.50 69.37
HeatingPlumbing	17. 52 103. 18	51. 85 104. 18		207.36
Painting	4.50	1.81		6.31
Glazing	2.25	. 59		2.84
Gas engine	20.94	11.38		32.33
Miscellaneous		1.74		1.74
Total	217.32	211.84		429.16
Wilson School, No. &:				
Carpentering	12.16	69.15		81.31
Heating	2.50	1.26		3.76
Glazing	2.50	2. 31		4.81
Total	17.16	72.72		89.88

Class of work.	Labor.	Material.	Contract.	Total.
Wilson Normal School, No. 162:				
Carpentering	\$45, 84	\$5, 15	l	\$50.99
Tinning		247.21		608, 24
Plumbing		23. 18		71.93
Painting.		18.64		52.39
Glazing		1.37		5. 87
Steam fitting .		55.10		97.60
Grading.		14.59		117.04
Motor	102. 40	2.96		3.77
Replacing moldings in panels on calling and covering with burlan	1	2.50	\$184.00	184.00
Miscellaneous		2.04	•104.00	2.04
Total	639.63	370.24	184.00	1, 193. 87
Wisconsin Avenue Manual Training School, No. 164:				
Carpentering		1.27	l	9. 27
Plumbing	6.37	.02		6.39
Glazing	25	. 57		. 82
Steam fitting	156.82	97.79		254.61
Total	171.44	99.65		271.09
Woodburn School, No. 101:				
Carpentering		149.34	,	230.90
Tinning		18.06		73.34
Heating	46.35	370.23		416.58
Painting	33.11	12.30	<b></b>	45. 41
Glazing	18.50	2.22		20.72
Miscellaneous		1.74		1.74
Total	. 234.80	553.89		788. 69
Wormley School, No. 49:				
Carpentering		20.31		61.50
Tinning		7.03		19.54
Heating		. 25	<u>.</u>	4.40
Plumbing		2.04		24.85
Painting		1.42		5. 42
Glazing		.84		3.59
Gas engine	9.88	9.08		18.96
Total	97. 29	40.97		138. 26
Various schools, on written orders in shop:				
Carpentering		142.92		1, 149. 83
Tinning		376.78		1,532.67
Heating		136.41		490.95
Plumbing		2.84		499. 22
Painting		151.14		163.14
Glazing	22.00	13.89		35.89
Steam fitting		52.15		72.66
Gas engines		103.71		228.67
Miscellaneous		363.32		3,565.27
Harseshoeing	317. 15	107.33		424.48
Total	. 6,712.29	1,450.49		8, 162. 78

Miscellaneous items on foregoing report are for lime, whitewash brushes, etc., furnished janitors for use on schools.

SUMMARY.		
Appropriation. Running stock on hand June 30, 1914.		8115,000.00
Running stock on hand June 30, 1914		18,753.90
		133, 753, 90
Total amount of labor accounted for on written orders	\$63, 575, 51	
Total amount of material accounted for on written orders	32, 408. 97	
Total amount of minor contracts and shop orders	17,376.00	
Allotment to engineer stables for forage	1,474.15	
Allotment to eard wheef	73 12	
Allotment to purchasing office (for inspector)	24. 15	
Preparing code (purchasing office)	34. 25	
Pro rata share of purchase of wagon	116, 10	
Pro rata share of purchase of blank forms	57.62	
Purchase of coal	378. 71	
Horseshoeing and blacksmith work done by shop	424.48	
Gas consumed	36.99	
Unexpended	249. 46	
		116, 229. 51

# Fire Department, District of Columbia, 1915—Repairs to engine houses.

Class of work.	Labor.	Material.	Contract.	Total.
No. 1 engine house:				
Carpentering.	\$24. 13	\$24.96	<b> </b>	\$49.0
Plumbing	9. 78	3.96		13.7
Painting	15.00	4.75		19.
Glazing		.26		
Total	48. 91	33. 93		82.8
No. 2 engine house:	30.00			40
Carpentering Tinning	1. 75	10.14 .33		40.1 2.0
Plumbing	8. 75	.32		9.
Glazing	1.31	2.22		3.
Total	41. 81	13. 01		54.
No. 4 engine house:				
Carpentering	93.55	60.50		154.
Heating		1.80		1.
Plumbing	3. 94	2.01		5.1
Painting	4.50	1.16		5.
Glazing	1.00	.34		1.3
Total	102.99	65. 81		168.
No. 5 engine house:				
Carpentering	184. 92	81.35		266.2
Tinning.	5. 75	7. 22		12.9
Plumbing	20.99	9. 29		30.2
-	. 25			.5
Total	211.91	97. 86		309.7
No. 6 engine house:				
Carpentering.	97. 69	37. 21		134.9
Tinning	96.57	164. 38		260.9
Plumbing	12.44	14. 27		26.7
Painting	43. 75 1. 75	20.39 1.28		64. 1 3. (
Repairing trip chains and iron stalls	27. 81	9. 92		37.7
Total	280. 01	247. 45		527. 4
No. 7 engine house:		<del></del>		
Carpentering	48.93	19.57	l	68.5
Tinning.	1. 75	2.28		4.0
Plumbing	30. 18	47.62		77.8
Painting	. 50	1.32		1.8
Glazing Miscellaneous	9. 53	4.86		14.3
		.06		
Total	90. 89	75. 70		166.5
No. 8 engine house:	***	20.45	1	93, 4
CarpenteringPlumbing.	60. 99 4. 19	32. 45 9. 84		14.0
Painting.	10.00	2.57		12.5
Glazing	2.50	1. 16		3.6
Grading	177. 33	12.30		189. 6
Total	255. 01	58. 32		313.3
Fire department repair shop:				
Carpentering	5. 66	2.03	ll	7.6
Glazing	. 50	. 24		.7
Total	6. 16	2. 27		8.4
Fire department stables:				
Fire depart and its sources	22, 44	24, 75		47. 19
Carpentering	1.62	.54		2.1
CarpenteringPlumbing				49.35
Carpentering Plumbing.  Total.	24.06	25. 29		
Plumbing  Total		25. 29		
Plumbing  Total	24.06			40 11
Plumbing  Total  No. 9 engine house: Carpentering.	24.06	28.75		
Plumbing  Total  No. 9 engine house: Carpentering Tinning	24. 06 13. 38 8. 62	28. 75 8. 84		17.4
Plumbing.  Total.  No. 9 engine house: Carpentering. Tinning. Heating.	24. 06 13. 38 8. 62 8. 00	28. 75 8. 84 3. 19		17. 44 11. 19
Plumbing.  Total.  No. 9 engine house: Carpentering. Tinning. Heating. Plumbing. Glazing.	24. 06 13. 38 8. 62	28. 75 8. 84		17. 44 11. 19 7. 4 2. 83
Plumbing.  Total.  No. 9 engine house: Carpentering. Tinning. Heating. Plumbing.	24.06 13.38 8.62 8.00 2.00	28. 75 8. 84 3. 19 5. 44		42. 11 17. 46 11. 15 7. 44 2. 85 3. 38

## Fire Department, District of Columbia, 1915—Repairs to engine houses—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
10 engine bouse:				
Carpentering	\$99. 12	\$47.40		\$146.
Tinning	103. 16	187. 83		290.
Plumbing	78.84	108.79	<b></b>	187.
Painting Drill and bolt wood panels to iron stalls	40.00	11.50	[•••••	51.
Drill and Dolt wood panels to iron statis	14. 80	3.50		18.
Total	335. 92	359.02	<u> </u>	694.
11 engine house:				
Carnentering.	46. 15	33.37		79.
Tinning	5. 75	8.07		13.
Plumbing	2.87	.99	·	3.
Plumbing	. 75	.53		1.
Glaring	.75	.37		1.
Miscelianeous	• • • • • • • • •	.02	·····	
Total	56. 27	43. 35		99.
12 engine house:				
Carpentering	113, 41	66.60	J I	180.
Tinning	14.56	4.87		19.
Plumbing	6.82	.54		7.
Painting	6.50	3,72		10.
Miscellaneous		4.02		4.
Total	141, 29	79.75	i	221.
<b>!</b>			-	
13 engine house: Carpentering	33.03	27.95	l	60.
Heating.	14.56	1.98		16.
Plumbing	17.60	12.90		30
Painting	1.50	1.88		3.
Repair trips	8. 25	4.86		8.
Total	69.94	49.57		119.
14 engine house:			<del></del>	
Carpentering	44.56	30.05	1 1	74.
Tinning	44.56 3.75	1.79		5.
Heating	4.94	.95		5.
Plumbing	31.18	10.48	1	41.
Plumbing. Glasting	5.75	10.48		16.
Miscelleneous (renair trins)	3.50		1	3.
Miscellaneous (repair trips)				
pit		•••••	\$27.50	27.
Total	193.68	53. 75	27.50	174.
15 engine house:				
Carnentering	80.49	61.83	1 <b>. l</b>	142
Tinning	235.71	331.92		567.
Heating	15. 19	8. 29 3. 96	<b>.</b>	23.
Tinning Heating Plumbing	11.86	3.96	<b>.</b>	15.
Painting	4.00	2.79	[	6.
Painting. Rewire stalls and put up trip chains.	7. 19	6.06	<u> </u>	13
Total	354. 44	414.85		769.
16 engine house:				
Carnentering	177.96	234.64	<b>.</b>	412
Timeles	224.07	88.78	J	312
	24. 76	15.66	J	40
Plumbing	8.56	8. 27	J	11.
Plumbing		1.77	<b>-</b>	2
Plumbing. Plainting. Glazing.	1.00		1 1	<b>25</b> 3.
Plumbing. Painting. Glazing. Steam fitting	81.87	171.96		•
Plumbing. Planting. Glaxing Steam fitting. Repairing motor	81.87 3.37	.60		
Plumbing. Painting. Glazing. Steam fitting. Repairing motor  Total	81.87	171. 96 . 60 516. 68		
Plumbing. Painting Glasting Steam fitting. Repairing motor  Total	81. 87 3. 37 521. 59	. 60 516. 68		1,038.
Plumbing. Painting Glazing Steam fitting. Repairing motor  Total	81. 87 3. 37 521. 59 5. 75	.60 516.68 5.57		1,038.
Plumbing. Painting. Glaxing. Steam fitting. Repairing motor  Total	81. 87 3. 37 521. 59 5. 75 10. 10	.60 516.68 5.57		1,038.
Plumbing. Plainting Glasting Steam fitting Repairing motor  Total	81. 87 3. 37 521. 59 5. 75 10. 10 2. 25	516.68 5.57 7.27 1.27		1,038. 11. 17. 3.
Plumbing. Painting. Glaxing. Steam fitting. Repairing motor  Total	81. 87 3. 37 521. 59 5. 75 10. 10	.60 516.68 5.57		11. 17. 3. 4.

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# Fire Department, District of Columbia, 1915—Repairs to engine houses—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
Io. 18 engine house: Carpentering	\$8.13	\$2.83		\$10.
Heating	2. 16 4.00	16. 10		1
PlumbingSteam fitting.	7.20	2.45		3
Install trips	24.80	31.18		55.
Repairing pit doors	.94	50.54		
Total	47.32	52.56		**
o. 19 engine house: Carpentering.	4.93	12.35		17
Tinning	28.50	10.77		39
Heating. Plumbing.	. <b>44</b> 7. 18	.09 .67		7
Total	41.06	23.88		64
o. 20 engine and No. 12 truck houses:		2.00		
Carpentering	126.66	61.28		187
Tinning	13. 25	2.47		15
HeatingPlumbing.	349. 01 17. 81	190. 01 36. 84		534 54
Painting.	7. 50	3.08		ı x
Glazing.	2.00	. 76		1
Total	516. 23	204.44		816
o. 21 engine and No. 9 truck houses:				
Carpentering	57.00	16.84		73.
Tinning. Plumbing	14.62 11.13	6.28 5.08		16
Glazing	4.50	6.80		l ii
Steam fitting.	.94	1.14		1
Repairing trips	7.06	. 85		7
Total	96. 25	87.09		132
o. 22 engine house:	00.15	***		154
Carpentering. Tinning.	96. 15 10. 73	58. 24 11. 79		22
Plumbing.	7. 25	1.05		8
Painting.	1.75	1.02		1
Glazing	1.49	. 86		1
Total	117.37	72.96		190
Io. 23 engine house:				
Carpentering		1.67		l i
HeatingPlumbing.	1.43 7.30	2.91		10
Glazing		.48		~
Total	8. 73	5.06		13
To. 24 engine house:				
Heating.	2. 16			2
Plumbing	5.87	1.26	J	7
Miscellaneous		2.38		2
Total	8.03	3.64		11.
lo. 25 engine house and No. 8 truck:				****
Carpentering	541.94	246.47		788. 44.
Plumbing.	23. 78 34. 63	21.08 22.51	J	57.
	4. 38	3.03		7.
Painting		8.85		6
Painting	2. 25			131.
Painting	2. 25 109. 31	21.95		
Painting. Glazing Steam fitting. Miscellaneous.	109. 31	. 67		1.4%
Painting Glazing Steam fitting Miscellaneous Total	716. 29			1,655.
Painting Glazing Steam fitting Miscellaneous.  Total	716. 29	. 67 319. 56		سند
Painting. Glazing. Steam fitting. Miscellaneous.  Total  to 26 engine house: Carpentering.	716. 29	319.56 13.99		#A.
Painting Glazing Steam fitting Miscellaneous  Total  Jo. 26 engine house: Carpentering Tinning Plumbing	716. 29 32. 84 2. 16 1. 63	319.56 319.56 13.99 1.08		46. I.
Painting. Glazing. Steam fitting. Miscellaneous.  Total.  io. 26 engine house: Carpentering. Timning. Plumbing. Glazing.	716. 29 32. 84 2. 16 1. 63 6. 53	319.56 319.56 13.99 1.08 .35 2.40		#A 1. 1.
Painting Glazing Steam fitting Miscellaneous  Total  Co. 26 engine house: Carpentering Tinning Plumbing	716. 29 32. 84 2. 16 1. 63	319.56 319.56 13.99 1.08 .35		1,685.

## Fire Department, District of Columbia, 1915-Repairs to engine houses-Continued.

Class of work.	Labor.	Material.	Contract.	Total.
o. 27 engine and No. 1 chemical houses:				
Carpentering	\$192, 25	\$160.70		\$352.9
Tinning	25.00	36.48		61. 4
Plumbing	11.44	5.51		16.9
Painting	8.00	4. 10		12.10
Glazing Repairing electric wiring to horse stalls.	1.75 7.20	1. 26 1. 45		3. 01 8. 65
Total	245. 64	209, 50		455, 14
o. 2 chemical house:				
Carpentering	15. 10	10.02		25. 1
Tinning	5. 40	12.45		17. 8
Plumbing	5. 47 8. 93	. 55		5. 41 9. 41
Steamfitting.	8. 19	21.59		20.7
Grading	68. 47	21.00		63. 4
Total	106, 56	44, 61		151. 13
	100.00	44. 01		131, 1
. 1 truck house: Carpentering	8.00	20.05	l l	28.00
Heating	2.13	1, 21		3.3
Plumbing	8.82	1.47		10. 2
Glasing	.75	1.50		2.2
Miscellaneous		.11		.11
Total	19.70	24.84		
	19.70	24. 84		44.0
. 2 truck house: Corpentering	121.75	56, 55		178, 30
Tinning	166. 68	332, 19		498. 87
Heating	6. 19	1, 18		7. 3
Plumbing	26. 81	46. 25		75. 00
Painting	2,75	2.41		5, 16
Glazing		. 14		. 14
Repair stalls	7. 32	7.07	•••••	14.39
Total	833. 50	445, 79		779. 25
. 8 truck house:		444		
Carpentering	290. 36	119.96		410. 3
Plumbing	18.37	80.09	• • • • • • • • • • • • • • • • • • • •	98.40
Painting Glasing	14.50 1.00	5. 37 1. 49		19. 87 2. 49
		1. 49	••••••	2.10
Total	324. 23	206. 91		531. 14
. 4 truck house:	1507	40.01		~ ~
Carpentering Tinning	1587. 12.16	48. 24		85. 39
Plumbing	1. 81	11.56 1.05		23.7
Glazing	1. 25	1. 29		2.86 2.54
Glazing Repairing spring bolt on front door	.94	2.20		. Š
Miscellaneous		.08		.06
Total	53. 31	62, 22		115, 58
. 5 truck house:				
Carpentering	35. 70	22, 76		58. 44
Heating	28, 15	21, 14		49. 2
Plumbing	7.88	5. 49		13.37
Painting	6.00 .25	2. 19 . 73		8. 19 . 96
_				
Total	77.98	52. 31		130. 2
. 6 truck house:	10 10	15 11		
Carpentering Tinning.	13. 19 17. 25	15.11	• • • • • • • • • • • • •	28.30
Heating	17. 23	₩. 24		35. 46 1. 43
Plumbing	9, 24	12, 25		21. 4
Painting		.38		. 30
Total	41. 11	45, 98		87.00
7 truck house:				01.U
Carpentering	70.32	83. 25	<u> </u>	103. 5
Tinning	1.50	.81		
Heating	20.10	7.68		2. 31 27. 78
Plumbing	24. 93	.29		25. 2
Painting	84. 50	7.49		41.99
Glasing.	1.00	. 53		1.5
Repairing pit cover.	. 63	. 16	·····	۸.
Total	152.98	50, 21	l	203. 19

### Fire Department, District of Columbia, 1915—Repairs to engine houses—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
No. 10 truck house: Carpentering. Plumbing.	\$8. 72 7. 12	\$3. 20 3. 38	,	\$11. 92 10. 50
Total	15. 84	6. 58		2.0

### Miscellaneous items on foregoing report are for material furnished captains.

#### SUMMARY.

SUMMANI.	
Total amount of labor accounted for on written orders.  Total amount of material accounted for on written orders.	\$5,666.20
Total amount of minor contracts and shop orders.  Allotment to engineer stables for forage.	27.50
Allotment to sand wharf	7.65
Pro rata share of purchase of wagon.  Pro rata share of purchase of blank forms.	6.03
Miscellaneous time and material consumed in shop on written orders for various engines	5.00
Unexpended	
	10, 492. 60
Appropriation Expended	12,000.00 10,492.09
Credited school stock.	1, 507. 31

### Metropolitan police, District of Columbia, 1915—Repairs to stations.

Class of work.	Labor.	Material.	Contract.	Total.
No. 1 police station:				
Carpentering		\$15.96		365.36
Tinning	27. 50	52.31	- <i>-</i>	79.81
Heating	55.27	196.64		251.91
Plumbing	32.55	2.84	]	35.39
Painting	46.75	9.59		56. 34
Glazing		.74		2.49
Steam litting	9.69	9. 76		19.45
Total	222. 91	287. 84		510.75
No. 2 police station:				
Carpentering	225.83	50.66		276.49
Tinning	6.63	8.87		10.50
Heating	2.15	11.59		13.74
Plumbing	56.45	23.94		80. 30
Painting	177.48	38.00		215.46
Glazing	2.25	1.70		195
Total	470. 79	129. 76		600. 55
No. 3 police station:				
Carpentering	451.00	147. 35	l	508. 35
Tinning	11.00	26.93		37.93
Heating		. 48	\$51.71	52, 19
Plumbling	70, 56	33.80		104, 36
Glazing		5.62		13.37
Total	540. 31	214. 18	<b>51.</b> 71	806.20
No. 4 police station:	l	<b>5</b>		
Carpentering	72.70	31. 22		. 103.92
Tinning	9.56	4.82		14.38
Heating	45.28	14. 36		59.64
Plumbing	50. 45	27.93		78.38
Painting	124. 25	31.44		155.69
Glazing	1.25	. 34		1.59
Repairing iron fence	7.24	. 55		7.79
Total	310. 73	110.66		421.39
A.V.	1 010.73	110.00		44 L 44

## Metropolitan police, District of Columbia, 1915—Repairs to stations—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
No. 5 police station:				
Carpentering	\$8.22	\$6.71		\$14.93
Tinning.		. 61		. 61
Heating Plumbing	3.38	16. 59		19.97
Giazing	6. 13 4. 25	.76 11.08		6.89 15.33
Steam fitting	11.87	2.30		14. 17
Steam fitting. Repairing iron cells.	3. 13	. 39		3.52
Total	36, 98	38.44		75. 42
No. 6 police station:				
Carpentering	173. 73	103.72		277. 45
Tinning.	124. 13	212.78		336. 91
Heating	2.87	61.74		64.61
Plumbing Painting	18.68	1.44	ļ <b></b> .	20. 12
Painting Glazing	63. 63	29. 43		93.06
Glazing Repairing lock on cell	1.74 4.38	2.74 .02		4.48
·	<del></del>	ļ		
Total.	389. 16	411.87		801.03
No. 7 police station:	81. 12	24.99		106. 11
Carpentering	30. 54	11.75	l	42.29
Heating.	2. 15	72.27		74. 42
Plumbing	9.75	3.90		13. 65
Painting	55. 81	12.76		68. 57
Glazing	1. 25	. 82		2.07
Total	180.62	126. 49		307. 11
No. 8 police station: Carpentering				
Carpentering	49.35	25. 11		74. 46
Tinning	40. 25	43. 15		83. 40
Heating. Plumbing	5.75 27.82	15. 28 32. 85		21.03
Painting	59. 13	11. 17		60. 67 70. 30
Glazing	14, 75	5.30		20.05
Steam fitting.	47. 31	16.06		63. 37
Total	244. 36	148.92		393. 29
No. 9 police station:				2
Carpentering. Plumbing.	5. 31	.85		6. 16
Plumbing Painting	9. 43 33. 25	. 31 11. 12		9. 74 44. 37
Total	47.99	12. 28		60.27
No. 10 police station: Carpentering.	69. 15	21. 61		90.76
Tinning.	105. 21	152. 95		258. 16
Heating	2.08	16. 45		18. 53
Plum bing	153.83	16. 45 166. 27		320. 10
Painting	117. 50	44.71		162.21
Glazing	2.00 7.56	1.49		3. 49
Pensising cell deep	7.56	12.80		20.36
Steam fitting Repairing call door.	6. 63	1.62		8.25
Total	463.96	417.90		881.86
No. 11 police station:				
Carpentering	10. 10	2. 28		12. 38
Tinning. Heating.	20.00	4.77		24. 77 15. 02
Plumbing	2. 25 24. 87	12.77 .63		25. 50
Painting	59.00	18. 57		77. 57
Total	116, 22	39. 02		155. 24
Tenley substation:	1			
Carpentering	585. 42	231. 22	<i></i>	816. 64
Plumbing	. 25	.03		. 28
Steam fitting	154.04	271.85		425. 89
Repairing iron fence.  Electrical work.	. 75	1.22		1.97
			\$15.00	15.00
Total	740. 46	504. 32	15.00	1,259.78
!				

### Metropolitan police, District of Columbia, 1915—Repairs to stations—Continued.

Class of work.	Labor.	Material.	Contract.	Total.
Cleveland Park watch box:	** m			
Painting Highway Bridge watch box:	\$4.00	\$3.30		\$7.30
Painting	4.50	3.40		7.90
Painting	8.00	3.69		6.60
House of Detention: Carpentering	8.19	19.60		27.88

### SUMMARY.

Total amount of labor accounted for on written orders.  Total amount of material accounted for on written orders.  Total amount of minor contracts and shop orders.  Miscellaneous time and material consumed in shop on written orders for various stations.  Allotment to engineer stables for forage.  Allotment to sand wharf.  Pro rata share of purchase of wagon  Pro rata share of purchase of blank forms.  Gas consumed.  Unexpended.	2, 471. 76 66. 71 409. 85 85. 71 4. 25 5. 40 2. 68 2. 70
Appropriation	6, 984, 37

### Courts, District of Columbia, 1915, Police Court—Repairs to building.

Charged to school stock.

#### [Appropriation, \$1,000.]

Class of work.	Labor.	Material,	Total.
Carpentering. Painting. Plumbing Steamfitting and boiler repairs. Material furnished engineer. Pro rata per cent in the purchase of wagon and blank forms.	367.58	\$44.16 104.40 153.55 5.96 49.61 2.02	\$240.90 471.96 212.23 19.61 49.61 2.02
Total	636. 61	359.72	996.33

#### SUMMARY

SUMMARY.	
Total amount accounted for	<b>3996.33</b> 3.67
·	1,000.00
Contingent and miscellaneous expenses, District of Columbia, 1915—Motor (maintenance, municipal architect).	vehicles
Allotment	. \$540.09 . 538.32
Unexpended	1.68

Approximately \$14,000 was allotted to this department by the different institutes of the District of Columbia for work during the fiscal year 1915.

Report of inspection of steam boilers, public schools, 1914-15.

School.	Bollers.	High pressure	Low pressure,	Length.	Diameter.	Tubes.	Size of tubes.	Manholes.		Size of man- holes.	Tested.	Safety blows.	Date of in- spection.	Remarks.
Armstrong Man- ual Training.	4	2		Ft.	In.	56	In. 34	1	II	nches. by 15	175	115	1914. Aug. 10	Put gaskets on steam line, pack blow
Do Birney Bowen, S. J	1 Z	2 2 1		16 17 14	36 54 54	94 42 64	3 <del>1</del> 4 3	1 1 1	10 6 11	by 141 by 10 by 15	180 75 100	125 25 45	do June 2 Aug. 13	cocks. Do. Good condition. Repaired heating
Brightwood	1 2 	1	1 '''i	12	42 42 42 66	43 52 38 66	33333	1 1 1 2	11 11	by 15 by 15 by 15 by 16	100 100 80 145	25 25 25 95	July 24 Aug. 14 July 25 Sept. 26	coils. Retubed boiler. Good condition. Do. Overhaul steam
Central High					52	64	3	1		b <b>y</b> 15	85	25	June 29	pumps. Put two tubes in boiler, renewed grates, and over
Do 1. Congress Heights Cranch. Curtis. Dennison. Eastern High. Emery.	22 22 22 22 2	1 2	 2 2 2 2 2	14 10 12 10 14 14	42 42 54 42 48 54	48 38 65 49 54 54	33333	1 1 2 2 2	10 11 11 11 11 11	by 14 by 15 by 15 by 15 by 15 by 15	150 100 100 100 100 100	95 25 25 25 25 45 80	May 12 July 11 June 23 June 27 July 10 July 7	hauled pumps. Do. Good condition. Do. Do. Repaired firebox. Good condition. Installed grate bars put new tubes in bollers, and put gaskets on steam
Parce	2		2	12	42	46	3	1	11	b <b>y</b> 15	100	30	June 24	line. Replaced defective tubes and relined firebox.
Franklin	2		2	12	48	48	3	1	11	by 15	80	35	July 28	Repaired arch over
Gales	2	• • • •	2	10	42	49	3	1	11	by 15	100	45	July 8	Repaired fire box sides.
Garnet	1		2	12	42	46	8	1	11	by 15	100	25	June 27	Repaired leaks in heating system.
Grant		••••	2	10	42	42	3	1	11	<b>by</b> 15	100	35	June 25	Repaired firebox
Henry	1		2	12	46	42	3	1	11	<b>by</b> 15	100	25	June 30	Retubed south
Jefferson Lincoln	2 2	2	<u>2</u>	12 10	42 42	46 38	3	1	11 11	by 15 by 15	100 65	35 80	Aug. 14 July 13	Good condition. Repaired fire box
M Street heat- ing plant.  McKinley Man-	2	2		21	48	139	4	2	l	by 15	150	97	Aug. 12	sides. Repaired dia phragm, stoke engine, and boile feed pumps.
ual Training: Boilers Nos. 1,2,3, and 4.	6	6				••••	••••			•••••	145	115	Aug. 6	Thread 3 manhole bolts and tapped 3 manhole places
Boilers Nos. 5 and 6.										•••••	150	115	do	put tube in boiler Do.
Miner Normal Peabody Seaton	2 2		2 2	16 14 10	36 54 42	94 54 40	3 3 3	1 1 2	111	by 141 by 15 by 15	150 100 100	100 25 35	May 31 July 9 July 7	Good condition, Do, Retubed boilers and repaired fire
Stevens	2		2	12	42	46	3	1	11	b <b>y</b> 15	100	35	June 25	box sides. Repaired fire box
Sumner	2		2	12	48	54	3	1	11	b <b>y</b> 15	100	35	June 24	sides. Relined firebox
Syphax		1		14	54	52	8	1	11	by 15	100	40	July 14	sides, retubed boil ers. Retubed boiler and and reinforced
Tenley	1 2 2	 2	1 2	10 12 15	45 46 48	46 52 48	3 3 3	1 1 1	11 11 10	by 15 by 15 by 14	100 100 150	45 50 25		manhole. Good condition. Do. Old boilers were re modeled.
Western High	4	4		16	60	82	3	2	11	by 15	120	60		Good condition.
Wilson Normal	2	2		16		96	3	2		by 15	150		1914.	Do.

#### REPORT OF THE PERMIT CLERK.

WASHINGTON, August 9, 1915.

Siz: I have the honor to submit the annual report of the work of this office, giving the character and number of permits issued during the fiscal year ending June 30, 1915.

TABLE No. 1.—Permits issued for which fees were paid.

		1914						1915					Ĺ.,
•	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Мау.	June.	Total.
Water:													
Connections	159 81	170 94	92	111 80	121 91	73 65	97	72 50	172 50	165	150 50	150	1,541
Repairs Sewer:	01	34	l "	. ~	1 21	90	92	۳ ا	, au	۳.	30	85	908
Connections	181	219	105	124	124	81	101	80	166	215	186	151	1,733
Repairs	68	68	52	84	58	51	80	57	58	66	41	64	747
Gas and electric:				۱		١	۱						
Connections Repairs	356 26	273 32	278 55	195 56	250 78	155 105	120 93	157 110	298 28	360 24	223	328 29	2,998
Auto tire-inflating	_~		"	J 36	l '°	100		110	<b>~</b>		"		
apparatus	l	1	I	2	1	l	1	l <i>.</i>	8	1	2	1	1 12
Carriage blocks and	1	l			1				1				١.
hitching posts	1 1	··· <u>·</u>	···-	···-	···-	::-	1	ļ <u>.</u> .	<u></u> -	<u></u> -	···-	····	
Conduits	28	33 17	19	14	36 14	19	25 1	12	25 14	27 16	13 12	49	297
Guard stones	1 1	4	2	111	1.3	ľ	•	1 2	47	10	1 4	l	122
Manholes, connect	٠ .		'	l	ļ		l	_		ľ	1 •		- ا
with sewer and	l		l		1	ı	l	l	l		l	l	ł
_ enlarge	8	9	24	6	18	5	5	14	ļ <u>.</u>	111	5	7	112
Parking fences	40 50	22 33	22 37	34 36	18 36	11 21	14	13	46 20	67	60	87	384
Poles	1 19	23	15	12	30	13	29 8	18 10	17	1 24	68	45	435 150
AA ORGIT MORES	1.8	20	13			140	L °	10		<u> </u>	l °	<u>'</u>	1.50
Total	1.027	995	780	765	856	605	667	604	898	1,088	876	972	10, 133

TABLE No. 2.—Special permits issued without fee.

			19	14					19	15			L
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
Water, sewer, gas Blasting Bridges across gutters Cables, aerial and overhead connec-	112 2 4	75 1 2	79 3 1	103	100	71 5	87 2	70	157 1 1	97 1 1	144 8	106 2	1, 201 25 18
tions	18 7 9 160 16	26 11 81 8	38 3 11 130 14	36 15 7 131 26	25 1 3 53 9	21 4 5 24 7	18 1 3 29 5	16 3 50 7	14 3 10 36 8	38 2 6 133 5	45 7 11 140 6	52 8 9 112 14	347 46 88 1,079 125
renew	7 35 2	1 15	27 1	11 5	2 10 8	12 14	1 4 2	2 8 1	11 10 1	12 14 4	24 8 3	18 14	101 160 22
leys, grade and repair	7 4 40	8 1 4 16	1 2 39	8 5 7 3	7 2 8 2	10 2 1 1	13 1 1 3	11 3 4 3	5 7 1	12 11 1	10 8 7 2	7 1 5 3	99 23 61 114
Sidewalks and road- ways, occupy	7 89 12	1 21 21	8 46	 1 59 12	2 2 21	4 2 18	1 2 18 12	1 4 87	1 25 12	5 108	5 107	4 3 48 12	16 41 587 60
ernment. Walls, retaining. Water tables. Wires, string. Miscellaneous. Wagon tags.	68 27 4	2 36 15 35 2	39 31 4	6 6 82 6	4 18 20 4 1	6 14 1	3 16 29 5 1	11 85 24 12 2	5 19 30 3	7 94 15 5	8 6 58 26 5	7 39 14 6	5 104 413 297 57 5
Total	648	362	485	488	304	217	257	299	366	566	623	479	5,094

Two thousand two hundred and ten communications were referred to this office Briefs were made of these on cards, permits issued when necessary, reports made, papers indorsed and returned to the respective division having supervision over the inspection of the work for which permits were issued.

A written report was made daily of all permits issued for excavation in the public

space and was forwarded to the engineer of highways.

Fifteen thousand two hundred and twenty-seven applications for permits were sorted, arranged according to the location of the work, and filed for ready reference.

Again it is my pleasure to invite your attention to the prompt and efficient manner in which my two assistants—H. E. Brooks and G. A. Ourand—have at all times performed their duties.

As in former years, I respectfully recommend the appointment of an assistant index clerk, whose services are greatly needed, especially in answering the greatly increasing telephone calls.

Very respectfully,

H. M. WOODWARD. Permit Clerk.

CAPT. W. D. A. ANDERSON, Corps of Engineers, United States Army Assistant to Engineer Commissioner, District of Columbia.

#### REPORT OF THE AUTOMOBILE BOARD.

WASHINGTON, D. C., September 25, 1915.

Sir: I have the honor to submit the following report of the automobile board for the

fiscal year ended June 30, 1915.

There were examined at the regular meetings of the board, held on the first and third Fridays in each month, and by the secretary and members at other times during the year, 4,423 applicants to operate motor vehicles in the District of Columbia, as required by the police regulations. Of those examined and recommended permits be issued them, 3,890 were to operate vehicles of the gasoline type, 155 of the electric type, 8 of the steam type, 339 for motor cycles; also 172 to operate vehicles of the United States and District of Columbia Governments used for official business. Thirty-one applicants were not satisfactory and were not recommended for permits. Four permits were revoked on recommendation of the major and superintendent of the Metropolitan police, one of the revoked permits being subsequently set aside.

Duplicate permits were issued to 733 persons upon affidavits being filed that the original permits had been lost or destroyed.

The revenue received for permits was \$13,530, residents of the District paying \$8,642

and nonresidents paying \$4,888, the amounts paid being shown in detail in tables herewith.

Enamel metal identification number tags were issued for 5,301 motor vehicles, viz. 117 for electric type pleasure, 16 for electric type trucks, 4,053 for gasoline type pleasure, 451 for gasoline type trucks, 5 for steam type, 621 for motor cycles, and 76 for official business of the United States and District of Columbia Governments. Duplicate tags were procured for 254 owners, the original tags being lost or so mutilated that the numbers were not able to be made out.

In addition to identification number tags issued residents of the District of Columbia there were issued to nonresidents 2,708 tags, the amounts paid and State of residence

being shown in table herewith.

The revenue received for identification number tags was \$15,866, residents of the

District of Columbia paying \$10,450 and nonresidents paying \$5,416.

The tables herewith show the number of applicants examined monthly, fees paid for permits by District of Columbia residents, and also tags issued.

Table No. 1.—Monthly summary of the number of applicants examined and type of motor of the vehicle to be operated and the revenue derived therefrom paid to the collector of taxes, District of Columbia, by residents thereof.

	Elec- tric.	Gaso- line.	Steam.	Motor- cycles.	Not competent.	Re- voked.	Employ- eas, United States and District of Colum- bia, no ica.	Dupli- cates.	Fees paid.
1914. July	9 5 18 18 20 21	309 293 289 268 296 170	1 1 1 2 1	35 39 33 27 17 18	2	1	11 19 17 13 18	58 75 67 52 56 42	\$754 625 772 623 634 832
1915. January February March April May June	16 10 10 5 13 10	162 201 331 391 593 587	1 1	9 12 84 50 41 24	9 10	1 1	12 6 21 14 20 11	55 51 16 65 114 82	362 442 732 862 1,246 1,294
Total	155	3,890	8	339	31	4	172	733	8,642

Table No. 2.— Monthly summary of the number of metal identification number tags issued to residents of the District of Columbia and the different kinds of motor vehicles to which the tags were assigned and amount paid to the collector of taxes, District of Columbia.

	Electric.		Gasc	oline.			United States	Dupli-	Paid
	Pleas- ure.	Trucks.	Pleas- ure.	Trucks.	Steam.	Motor- cycles.	and District of Colum- bia.	cate	for tage.
1914. July	3 6 17	1 1	297 229 274 327 212 166	22 33 39 30 30 26	1	60 56 47 33 24 18	11 3 8 4 5	21 11 13 19 23 21	\$786 644 734 816 854 460
1915. January. February. March April May May June.	8	1	188 190 424 471 658 617	15 35 44 41 58 48	1 1	22 39 74 92 79 68	11 2 10 6 4	16 19 21 39 31 20	472 546 1,106 1,238 1,006 1,496
Total	117	8	4,053	421	5	621	76	254	10, 450

Wisconsin.	<b></b>	
West Virginia.	<b>S</b>	69
Vermont.	2	6
Texas.	g e	-
Tennesses.	200	-
Rhode Island.	2	10
Pennsylvania.	3 - 0	2
Oregon.	8	67
Oklahoma.	8	-
Орю	g «	•
North Carolina.	<b>3</b>	69
New York.	<b>2</b> uōeu 440eu	3
New Jersey.	<b>2</b> 4⊲	œ
New Hampshire.	22	69
Nebraska.	23	69
Michigan.	2	64
Massachusetts.	<b>3</b> 0 + 00	2
.eataM	3	100
Louisiana.	3	64
Tilimois.	8	69
Georgia.	g <sub>e</sub>	-
Florida.	8	69
Connecticut.	<b>2</b> °	: -
Virginla.	52222 2222	
Maryland.	22 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4, 168
	July July Mugust September September October November December 1915. January Pebruary April	Total

TABLE NO. 4.—Amounts paid by nonresidents for identification number tags for motor vehicles to be operated in the District of Columbia and State of their residence.

North Carolina.		<b></b>	~
.ntanooai W		83	8
West Virginia.	<b>g</b> 8		*
Vermont.		\$	6
.saxeT		8	8
Tennessee.		8	8
Rhode Island.		22	7
Pennsylvania.	gana a	640	8
Oklahoma.	28	64	-
оргю.	8	64	•
New York.	g non	nno	ន
New Jersey.		2	8
New Hampshire.	8	64	+
Иергазка.	2		8
Michigan.	200		•
Massachusetts.	3	4 (4	01
.entsM		8	3
Kansas.		2	2
.gwoI	8		2
.elomilI	8		9
Georgia.	200		+
Florida.	23		8
Virginia.	228823	<b>88583</b> 8	612
Maryland.	25.55.45.0 45.55.55.0 45.55.0 45.55.0 45.0 4	225288 225288	4,698
	1914. July August August Geptember October November	January February March A pril	Total

The amounts paid the collector of taxes, District of Columbia, for enamel metal identification number tags, as per the act of Congress approved February 15, 1908, which provides "that for the identification number tag and registration thereof the owner of each motor vehicle shall pay the sum of two dollars, and the secretary of the automobile board shall, after the payment of said fee to the collector of taxes, District of Columbia, issue said owner the identification tag," and for permits to operate such motor vehicles are shown in following table, which shows the increase each fiscal vear:

	Per	mits.	Tr	ags.	Nonresidents.		
Year.	Number issued.	Fees paid.	Number issued.	Fees paid.	Permits.	Tags.	
1907-8 1908-9 1909-10 1910-11 1911-12 1912-13 1913-14 1914-15	2, 262 2, 593	\$1, 292.00 4, 460.00 6, 022.00 6, 246.00 5, 942.00 8, 642.00	2, 214 1, 684 2, 387 2, 634 4, 070 4, 035 3, 913 5, 301	\$2,666.00 3,568.00 4,752.00 5,314.00 7,848.00 7,872.00 7,650.00 10,450.00	<b></b>	\$1,939.58 3,587.56 5,416.00	

The recommendation for a yearly registration with a distinctive number tag for each year is renewed and urgently recommended.

Very respectfully,

H. M. WOODWARD. Secretary Automobile Board.

Capt. W. D. A. ANDERSON, Corps of Engineers, United States Army, Assistant to Engineer Commissioner, District of Columbia.

### REPORT OF THE ELECTRICAL ENGINEER.

WASHINGTON, October 4, 1915.

Sin: I have the honor to submit the following report of the operations of the electrical department during the fiscal year ended June 30, 1915. Respectfully,

WALTER C. ALLEN, Electrical Engineer.

Capt. J. L. SCHLEY, Corps of Engineers, United States Army, Assistant to Engineer Commissioner.

### INCANDESCENT ELECTRIC LIGHTING.

The improved form of ornamental incandescent electric lighting has been extended on approximately 10 miles of street in place of gas and electric arc lamps. Eight hundred and fifty 100-candlepower lamps were installed on the following streets:

Harvard Street NW.

Mount Pleasant Street from Harvard Street to Park Road NW.

Calvert Street from Columbia Road to Twentieth Street NW.

Florida Avenue from Seventh Street to Tenth Street NW.

Ninth Street from Massachusetts Avenue to U Street NW

Sixth Street from Massachusetts Avenue NW. to Virginia Avenue SW.

Street between Four-and-a-half and Seventh Streets SW.

Maryland Avenue from First to Seventh Streets SW.

Columbia Road from California Street to | Fifth Street from D to I Streets NW. Louisiana Avenue from John Marshall

Place to Seventh Street NW.

Indiana Avenue from John Marshall Place to First Street NW.

John Marshall Place from Pennsylvania Avenue to D Street NW.

C Street between John Marshall Place and Seventh Street NW

C Street between North Capitol and Second Streets NW.

D Street between Third and Seventh Streets NW.

First Street between B and C Streets NW. E Street from North Capitol to Fourth Streets NW.

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- E Street from Fifth to Seventh Streets | NW.
- F Street from North Capitol to Fourth Streets NW.
- F Street from Fifth to Seventh Streets NW.
- G Street from New Jersey Avenue to Seventh Street NW.
- H Street from Massachusetts Avenue to Fourteenth Street NW.

I Street from Massachusetts Avenue to Fourteenth Street NW.

New Jersey Avenue from B to G Streets NW.

New York Avenue from Ninth to Fourteenth Streets NW.

Fourteenth Street between New York Avenue and G Street NW.

The installation of this form of lighting on Pennsylvania Avenue SE, from Second to Seventeenth Streets, on Eighth Street SE. between Pennsylvania Avenue and M Street, and on Eleventh Street SE. between Pennsylvania Avenue and O Street was in progress on June 30, 1915.

This type of lighting was installed on Sixteenth Street from Piney Branch Bridge This type of lighting was instance on Sixteenth Street from Finey Branch Bridge to Madison Street (a distance of 7,700 feet), the spacing of the posts being three times the average city spacing. The posts are so located, however, that the intermediate lamps can be readily installed on the standard arrangement without disturbing the existing posts whenever the improvements on the street warrant the increased expenditure.

The lighting of the Piney Branch Bridge was changed by the substitution of single-lamp standards for the original three-light standards. The latter were designed for

one 24-inch and two 17-inch ball globes each, but considerable expense was incurred by the lighting company in replacing the larger globes, due to the excessive breakage. Each post carried three 100-candlepower lamps, which were replaced by one 250-

candlepower lamp on the new posts, using the standard 16-inch globe.

On July 1, 1914, incandescent-lamp manufacturers announced the introduction of new high-efficiency, gas-filled lamps for street-lighting purposes and the discontinuance of manufacture of the existing types. Advantage was taken of this improvement by requiring the lighting company to gradually replace the old type lamps then in use with the new kind as rapidly as the former were burned out, the change to be completed by January 1, 1915. As a result of this improvement in manufacture, all 40candlepower lamps were replaced with 60-candlepower lamps without increase in the annual cost of maintenance, all the 80-candlepower lamps were increased to 100-candlepower, and the 40-candlepower lamps in the ornamental lighting system on Sixteenth Street north of U Street increased to 100-candlepower, while the candlepower in all the other lamps remained unchanged, but with a reduction of 40 per cent in the wattage required for their operation. These changes resulted in a reduction of \$9,875 per annum from the amounts paid to the lighting company.

#### ARC LIGHTING.

The appropriation act for the fiscal year 1912 required that all inclosed arc lamps in service on July 1, 1911, be replaced either with 4-ampere magnetite arc lamps or with some other form of improved lighting to be selected by the commissioners, the changes to be made at the rate of not less than 400 lamps per annum, and to be completed by April 1, 1914. In compliance with this act the following changes have been made:

During the year ended April 1, 1912: Changed to 4-ampere magnetite arc lamps. Replaced by incandescent electric lamps.	201 199
	400
During the year ended Apr. 1, 1913:	
Replaced by incandescent electric lamps.  Changed to 4-ampere magnetite lamps.  Ordered changed to 6.6-ampere magnetite lamps (completed Jan. 30, 1914).  Ordered changed to 4-ampere magnetite lamps (completed during the following year)	134
Ordered changed to 6 6-ampere magnetite lamps.	43
Ordered changed to 4-ampere magnetite lamps (completed during the fol-	10
lowing year)	168
•	423

During the year ended Apr. 1, 1914: Changed to 4-ampere magnetite lamps. Replaced by incandescent electric lamps. Ordered replaced by incandescent electric lamps (42 replaced in following year; 45 replaced in August, 1915). Ordered replaced by 4-ampere magnetite lamps (work not completed Apr. 1, 1914).	87 96 87 110 380
During the year ended Apr. 1, 1915:  Changed to 4-ampere magnetite lamps.  Replaced by 6.6-ampere magnetite lamps.  Replaced by incandescent electric lamps.  Ordered replaced by incandescent electric lamps (work not completed Apr. 1, 1915).	89 73 73 99

Ornamental luminous arc lamps (6.6-ampere magnetite) similar to those erected on Pennsylvania Avenue, between First and Fifteenth Streets NW., last year, were installed on F and G Streets from Seventh to Fifteenth Streets; on D Street, between Seventh and Tenth Streets; and on Eighth, Ninth, Tenth, Eleventh, Twelfth, and Thirteenth Streets, between Pennsylvania Avenue and G Streets NW.

#### PAINTING.

All of the ornamental posts used in the electric incandescent lighting system, as well as all of the gas lamp-posts, were painted during the year by the several companies maintaining lamps thereon. The work on the gas posts west of Rock Creek was begun July 22, 1914, and completed July 25, 1914; on the gas posts east of Rock Creek work was begun July 25 and completed September 16, 1914. The work on the electric light posts was begun July 19 and completed August 27, 1914.

#### LIGHTS ALONG STEAM RAILROADS.

The situation with respect to the several suits brought by the District of Columbia against steam railroad companies to compel repayment of sums expended by the District for maintaining lights along the respective rights of way of such companies is as follows:

Judgment in the sum of \$1,042.04, secured against the Washington Terminal Co. for the amount due up to and including September 1, 1909, has been paid, together with costs, and with interest from the above date to February 28, 1913. The total paid was \$1,392.08. A retrial of this case on certain questions of fact is now pending in the Supreme Court of the District of Columbia.

The suit of the District against the Philadelphia, Baltimore & Washington Rail-road Co. was brought before the Supreme Court of the United States, but was not

heard by that court for lack of jurisdiction.

The corporation counsel's office has decided to await the decision in the case of the Washington Terminal Co. before reentering suit against the Philadelphia, Baltimore & Washington Railroad Co. under the provision of the appropriation act for the District of Columbia for the fiscal year 1914.

The Baltimore & Ohio Railroad Co. and the Georgetown Barge, Dock, Elevator &

Railway Co. are continuing to pay for the maintenance of the lamps charged to them.

### Lamps of all kinds in service July 1, 1915, as compared with July 1, 1914.

Kind of light.	1914	1915
Mantle gas	10, 187	10, 196
Electric arc:		
6.6-ampere series inclosed	166	99
5-ampère multiple inclosed	278	
6.6-ampere magnetite		320
4-ampere magnetite	479	522
Electric incandescent:	1	
250-candlepower, series	1	
100-candlepower, series	1,785	2,860
100-candlepower, multiple	1,100	101
80-candlepower, series.	206	101
80-candiepower, series	200	
60-candlepower, series	329	3, 241
60-candlepower, multiple		320
40-candlepower, series and multiple	3, 162	
4-glower Nernst	64	64
Street designation lamps:		
Gas	424	391
Electric	67	8
Total	17,335	18, 201
	2.,000	10,20

Net increase during year, 866 lamps.

During the year the following changes have been made in the various forms of stree lamps:

Kind of light.	Added.	Discon- tinued.
Mantle gas Electric arc:	136	128
6.6-ampere series inclosed		67
5-ampere multiple inclosed		279
6.6-ampere magnetite.		-13
4-ampere magnetite.	3 80	مُد ا
Electric incandescent:	- 00	100
250-candlepower, series	34	ŀ
100-candlepower, series	43, 151	2,076
100-candlepower, multiple.	113	7,010
80-candlepower, series	- 113	206
60-candlepower, series	63.252	338
60-candlepower, multiple	330	10
40-candlepower, series and multiple.	6.54	3.216
Street designation lamps:		0,20
On fire-alarm posts—		ļ
Gas	14	10
Electric incandescents	16	
On patrol posts, gas.		5
On plain posts—		
Gas		32
Electric incandescent.		1
Total	7, 294	6, 428

Net increase during the year, 866 lamps.

1 These lamps replaced seventy-three 5-ampere multiple inclosed arc lamps and 1 4-ampere magnetite

arc iamp.

3 These lamps replaced eighty-nine 5-ampere multiple inclosed arc lamps.

3 These lamps replaced twelve 100-candlepower incandescent electric lamps.

4 These lamps replaced sixty-seven 6.6-ampere series inclosed arc lamps, one hundred and seventeen 5-ampere multiple inclosed arc lamps, fourteen 80-candlepower incandescent electric lamps, none hundred and twenty-eight 40-candlepower incandescent electric lamps,

meandescent electric lamps, one nundred and twenty-signt 40-candlepower incandescent electric lamps, and 75 maile gas lamps.

5 These lamps replaced ninety-two 80-candlepower incandescent electric lamps and four 60-candlepower incandescent electric lamps.

6 These lamps replaced two thousand seven hundred and seventy-five 40-candlepower incandescent electric lamps and 25 mantle gas lamps.

7 These lamps replaced two hundred and ninety-three 40-candlepower incandescent electric lamps.

8 These lamps replaced 24 mantle-gas lamps.

### SUMMARY OF CHANGES.

Net increase in number of lamps.  Discontinued.  Replaced by other kinds.  3,	866
Discontinued	595
Replaced by other kinds	833
	_
Total changes	294

Cable installed and withdrawn during the year and amount in service June 30, 1915.

INSTALLED.

	818	Signal.		Telephone.			) 	Combination.	ģ.			Total.	7	
į		Conduc-		Conductors (Brown & Sharpe).	ectors Sharpe).		Cond	Conductors (Brown & Sharpe).	own & B	narpe).		Conductors (Brown & Sharpe).	(Brown d	(Sharpe).
Size of cable.	Cable.	tors, No. 14, Brown &	Cable.			Cable.	ž	No. 14,	ž	No. 19.	Cable			
		Sharpe.		No. 19.	No.		Padrs.	Conduc- tors.	Padrs.	Conduc- tors.		No. 14.	No. 19.	No. 22.
45 petr 20 patr 20 patr 15 patr 15 patr 16 patr 6 patr 8 patr 7 Total Total		Beef	jė į	ž Ž	Feet. WIT	T. Fret. 1, 865 1, 100 1, 100 1, 728 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 6, 532 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Total						3,773		27,458		30,184	8,773	27,458	30,184	

Cable installed and withdrawn during the year and amount in service June 30, 1915—Continued.

s.
, 1915.
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SUNE
SERVICE
Z

	Signal	nal.	L	Telephone.			ರ	Combination	ei.			Total	al.	
		Conduo-		Conductors (Brown & Sharpe)	stors Sharpe).		Comd	Conductors (Brown & Sharpe).	own & Si	harpe).		Conductors (Brown & Sharps).	(Brown	k Sharpe).
Size of Ondie.	Cable.	No. 14,	Cable.			Cable.	ů	No. 14.	No	No. 19.	Cable.			
		Sharpe.		No. 19.	Zi Si		Padrs.	Conduc- tors.	Pairs.	Conduc- tors.		No. 14.	No. 19.	Z. S.
16 neir	Feet.	Feet.	Feet.	Feet.	Feet.	Fed.	ģ	Feet.	No.	Feet.	Feet.	Feet.	Feet.	Feet.
100 pair.			2,310	207 691 6	- 462,000						2,310		9 169 400	462,000
90 pair			_	3, 104, TU		08	8	28,800	8	27, 600	8	28,800	57,8	
80 pair 75 nair			4.276	641.250		, 503	8	270,180	3	450,300	*, <del>*,</del> 25, 27, 5, 27, 5	270, 180	\$ 5 8 8 8 8	
70 pair						1,857	8:	111,430	\$5	148,560	1,867	111,420	148,560	
60 pair						,4, 38	38	178	88	176,460	44 3	178, 60, 60,	176	
55 pair	9 833	963 200	667 9	701 000	21.400	11,401	12	342,030	\$	912,080	11,401	842,880 82,880	92,080	707 176
45 Defr	:	30,000	6	200,100	32,1	6.214	8	248,560	R		6,2	2 2 3 3	30,00	3 .
45 pair	•	:		:		20,919	22.5	627,570	88	1,285,146	20,919	627,570	1,256,140	:
35 pair						792,58	32	713,010	8		28,787	718,010	960,080	
83 pair 20 pair	12 010	781 140	3 084	182 160	:	<b>3</b> , <b>6</b>	12	157, 522	91		4,5 8,5	157,622	148,256	
30 pair	•		3			574	12		12	17,220	574	2	2	
30 pair 25 pair			13,467	673.350		8,8 5,8	22		83	2, 689, 687, 687, 687, 687,	36, 476 36, 367	1, 82, 58, 58, 58, 000	1,650 360,940 360,940	
20 pair.			9,916	396, 640		19, 792	2 4		25	396, 840	86,78 108	396, 840 87, 840	25. 26. 26. 26. 26.	:
16 pair	19,247	677, 410	2	2, 160		7,611	900		-	5	8	990	108,77	
12 pair	12,240	289,066				60,016	<b>.</b> •		<b>0 0</b>	729, 156	, E.	1,018,212	72, 26, 156, 156, 156	
10 pair 8 pair	•	11, 480				18,97	20 <del>4</del>		10 4	286,770	28, 547 75, 547	281, 170	25.73	
6 pair						286	-		CT	88,	28	47,873	8	
5 pair.						32, 160 115, 512	<del>,</del>	192, 960 462, 048	<b>~</b>	25. 25. 25.	82, 160 115, 512	192,980 462,048	25 25 35	
Total	47,600	1,912,306	58, 261	4, 489, 760 3, 065, 700	3,066,700	617,062		8, 547, 576		11, 801, 648	722,922	10, 350, 882	16,291,408	3,065,700

Installed 7 miles of cable containing 178,978 miles of conductor; withdrawn 0.714 miles of cable containing 10.717 miles of conductor; in service June 30, 1915, 136.917 miles of cable containing 5,636.324 miles of conductor.

Amount of space occupied by cable installed and withdrawn during year and by that in service July 1, 1915.

·	Space	occupied by o	able.
Owner of space.	Installed during year.	With- drawn dur- ing year.	July 1, 1915.
District of Columbia. Chesapeake & Potomac Telephone Co. Washington Ry. & Electric Co.¹ United States Government. Western Union Telegraph Co. Washington Terminal Co. Submarine Cable. Piaced in parking Miscellaneous.	11,316 5,416		Feet. 162, 253 517, 922 27, 590 1, 536 7, 180 1, 019 150 2, 115 3, 157
Total	37,007	3,773	722, 922

Under this name are included the conduits of all companies controlled by this corporation.

Aerial cable withdrawn during the year and amount in service June 30, 1915.

#### WITHDRAWN.

	Tele	phone.		(	Combinatio	n.			Total.	
Size of		Con-		Cond	uctors (Br	own & 8	harpe).		Condu (Brown &	ictors Sharpe).
cable.	Cable.	ductors No. 19, Brown	Cable.	No	o. 14.	No	. 19.	Cable.		
		& Sharpe.		Pair.	Conduc- tors.	Pair.	Conduc- tors.		No. 14.	No. 19.
20 pair 10 pair	Feet.	Feet.	Feet. 1,152 890	No. 10 5	Feet. 23, 040 8, 900	No. 10 5	Feet. 23, 040 8, 900	Feet. 1, 152 890	Feet. 23, 040 8, 900	Feet. 23, 040 8, 900
Total			2,042		31,940		31,940	2,042	31,940	31,940
	·		I	N SERV	ICE JUN	E 30, 19	)15.			
25 pair 15 pair 12 pair	1,599	79, 950	10, 130 8, 625 9, 558	10 6 6	202, 600 103, 500 114, 696	15 9 6	303, 900 155, 250 114, 696	11, 729 8, 625 9, 558	202, 600 103, 500 114, 696	383, 850 155, 250 114, 696
12 pair 8 pair			9, 558 852	6	114,696 6,816	6	114,696 6,816	9,558 852	114,696 6,816	114,

79,950 29, 165 427,612 580, 662 30, 764 427,612 Total...

In service June 30, 1915, 5.826 miles of cable containing 206.102 miles of conductor.

#### TELEPHONE SYSTEM.

A great improvement was made in the District telephone service, beginning February 1, 1915, by the substitution of women for men operators during the hours from 8 in the morning until 5 in the afternoon. At the same time two operators' positions (only one of which is now equipped for operation) were added to the existing four-position switchboard. With five operators at the switchboard and the sixth acting as chief operator and information clerk, the department has been able to give most satisfactory rervice during the busiest periods of the day.

At the time this switchboard was enlarged the department secured substantial reductions from the Chesapeake & Potomac Telephone Co. in the annual rental of all telephone switchboards, amounting to \$733 per annum, a reduction of over 331 per cent.

660,612

The following 23 telephones were added to the two switchboards of the department during the year:
District Building: Offices of the Public Utilities Commission—
Photostat room 1 Valuation bureau 2 Offices of the secretary to the board of commissioners, room 509, exten-
sion telephone
Outside offices: Police substation, Tenleytown
Harbor police precinct station. 1 Engineer department stables, Camp Good Will. 1 Property yard, First and Canal Streets SW., extension. 1 Playgrounds' storeroom, 1052 Wisconsin Avenue NW. 1
Public schools: Armstrong Manual Training School
Garnett School. 1 Sumner School 1
Normal School No. 2. 1 Fillmore School, extension. 1
Slater School. 1 M Street High School 1
Seaton School, extension.
Henry School
Carberry School, extension
District Building: Office captain of the watch, room 22
Franklin School switchboard: One telephone, Franklin School Building, for use of the Western High School, was added to this switchboard during the year. Police department switchboard: One telephone, room 7, District Building, was added to this switchboard during the year.  Water department switchboard: One telephone was added to this switchboard during the year.
Number of telephones connected to the District system on July 1, 1915.
Offices in the District Building         159           Outside offices and institutions         79           Public schools         196           Fire department         50           Police department, private branch exchange         48           Franklin School, private branch exchange         26           Water department         41           Police patrol service         427
Total
There are 26 portable telephone sets in service, the property of the District of Columbia. These instruments are used by the fire department and the employees of the electrical department.

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#### STORAGE-BATTERY SYSTEM.

The number of cells of storage battery in service July 1, 1915, was as follow	re:
On fire-alarm circuits	. 1, 862
On patrol circuits	226
On local circuits	. 86
	2, 174

#### DISTRICT UNDERGROUND CONDUIT AND CABLE SYSTEM.

The following conduit connections were made to the underground system:

#### Fire-alarm posts (total, 23).

Warder and Kenyon Streets NW.

New Hampshire Avenue and Upshur Street NW.

Four-and-a-half and L Streets SW.

First and K Streets SW.

Delaware Avenue and First Street SW.

Ninth and H Streets SW.

Water Street north of I Street SW.

Third and N Streets SE.

First and K Streets SE.

First and N Streets SE.

Sixth and F Streets NE.

Sixth and K Streets NE.

Third Street and Rhode Island Avenue NW.

Forty-first and Legation Streets NW.
Pennsylvania Avenue between Seventeenth and Eighteenth Streets NW.
Seventeenth Street and Park Road NW.
Columbia Road and Warder Street NW.
Fourteenth and Kennedy Streets NW.
Piney Branch and Blair Roads NW.
Belt Road and Carrison Street NW.
Chesapeake Street and River Road NW.
Fifth and Shepherd Streets NW.
Sixteenth and Longfellow Streets NW.

### Patrol posts (total, 33).

Four-and-a-half and I Streets SW Four-and-a-half and L Streets SW. First and L Streets SW. I Street between Ninth and Water Streets South Capitol and I Streets SW. Half and M Streets SW. Half Street between G and H Streets SW. Third and M Streets SE. First and L Streets SE. Half and I Streets SE. New Jersey Avenue and N Street SE. Fourth and East Capitol Streets SE. Seventh and F Streets NE. Sixth Street and Virginia Avenue SE. Delaware Avenue and K Street SW. Twelfth Street and Florida Avenue NW. Ninth and K Streets NE. Bryant Street east of First Street NW. Twelfth Street south of East Capitol Street SE.

H Street between Delaware Avenue and First Street SW.
Water and G Streets SW.
Fourteenth and G Streets SE.
First and H Streets NE.
M Street between Six-and-a-half and Seventh Streets NW.
Ninth and O Streets NW.
Thirteenth and M Streets NW.
Fifth and P Streets NW.
M Street between Connecticut Avenue and Eighteenth Street NW.
Columbia Road and Warder Street NW.
Second and A Streets NE.
Thirty-seventh and O Streets NW.
Upshur Street between Seventh Street and New Hampshire Avenue NW.
Piney Branch and Blair Roads NW.

### Connections to buildings (total, 11).

Smallwood School, I Street between Four-and-a-half and Third Streets SW. Randall School, First and I Streets SW. Cordoza School, I Street between First and Half Streets SW. District of Columbia sand yards, Water Street near foot of Ninth Street SW. Standard Oil Co.'s plant, Half and K Streets SW. Dog pound, South Capitol and I Streets SW.

Standard Oil Co.'s plant, Half and I Streets SE.

No. 11 police station house, Nichols Avenue and Chicago Street SE.

Birney School, Nichols Avenue near Howard Avenue SE.

Georgetown University, Thirty-seventh and O Streets NW.

St. Ann's Infant Asylum, 2300 K Street NW.

#### Connections between conduits (total, 5).

Third and L Streets to New Jersey Avenue and N Street SE. Georgia Avenue and Irving Street NW. Columbia Road and Warder Street NW.

Second and D Streets to Second and E Streets SW. Virginia Avenue between Delaware Ave-

nue and Second Street SW.

Fourth and K Streets SE.

#### Conduit extensions (total, 14).

Fourteenth and G Streets NW. Southwest corner Eighteenth Street and Columbia Road NW. Northwest corner of Eighteenth Street and Columbia Road NW.

Eleventh and M Streets SE.

Eleventh and O Streets SE. E Street between New Jersey Avenue and Canal Street SE.

B Street between Pennsylvania Avenue and Third Street SE. Eleventh and I Streets SE. Eighth and G Streets SE. Ninth and L Streets NW. Thirtieth and K Streets NW Thirty-first and K Streets NW. Fifth and E Streets NW.

In making the above-mentioned connections and extensions, 19,086 feet of conduit (duct feet) and 36 manholes were built, the work being done by this department.

#### Connections to the underground system, July 1, 1915.

Fire-alarm posts.	384
Police-patrol posts	301
Cable-terminal posts.	7
Schoolhouses	68
Fire-department houses.	30
Police station houses	
Miscellaneous District buildings	10
United States Government buildings.	23
Private buildings.	53
Cable poles	77
Total	220

#### POLICE-PATROL SYSTEM.

The following changes and 28 new installations were made in the patrol system: Second precinct.—New installation, connected underground: Box No. 18, M Street between Six-and-a-half and Seventh Streets NW.; box No. 19, Thirteenth and M Streets NW.; box No. 28, Fifth and P Streets NW.; box No. 29, Ninth and O Streets NW.

Third precinct.—New installation, connected underground: Box No. 131, M Street

between Eighteenth Street and Connecticut Avenue NW.

Fourth precinct.—New installation, connected underground: Box No. 18, South Capitol and I Streets SW.; box No. 19, Half and M Streets SW. Changed from overhead to underground connection: Box No. 125, Delaware Avenue and K Street SW.; box No. 121, Four-and-a-half and L Streets SW.; box No. 15, Four-and-a-half and I Streets SW. (moved from I Street between Third and Four-and-a-half Streets SW.); box No. 124, Half and G Streets SW.; box No. 123, First and L Streets SW.; box No. 41, First and H Streets SW.; box No. 26, First and E Streets SW.; box No. 33, Water and I Streets SW.; box No. 25, Water and G Streets SW. The system was changed in the property from a two circuit registering and heighing system to a straight telephone precinct from a two-circuit registering and bridging system to a straight telephone service, each box being connected direct to the precinct station by an independent circuit.

Fifth precinct.—New installation, connected underground: Box No. 11, Fourth and East Capitol Streets SE.; box No. 20, Sixth Street and Virginia Avenue SE.; box No. 30, Fourteenth and G Streets SE.; box No. 38, Twelfth Street between A and B Streets SE. Changed from overhead to underground connection: Box No. 18, Third and M Streets SE.; box No. 19, Half and I Streets SE.; box No. 34, New Jersey Avenue and N Street SE. Change of location: Box No. 34 moved from New Jersey Avenue

and N Street SE. to Canal and E Streets SE.

Sixth precinct.—New installation, connected underground: Box No. 19, First and H Streets NE.

Seventh precinct.—New installation, connected underground: Box No. 45, Thirtyseventh and O Streets NW.

Eighth precinct.—New installation, connected underground: Box No. 27, Twelfth Street and Florida Avenue NW.

Ninth precinct.—New installation, connected underground: Box No. 18, Second and A Streets NE.; box No. 28, Seventh and F Streets NE.; box No. 37, Ninth and K Streets NE. New installation, connected overhead: Box No. 127, Forty-eighth Place and Sheriff Road NE.; box No. 143, Bladensburg Road opposite Corby's yeast plant; box No. 144, Ridge Road between Alabama and Minnesots Avenues SE.

Tenth precinct.—New installation, connected underground: Box No. 47, Upshur Street between Seventh Street and New Hampshire Avenue NW.; box No. 57, Piney Branch and Blair Roads NW.; box No. 64, Columbia Road and Warder Street NW.; box No. 65, Bryant Street near First Street NW. New installation, connected overhead: Box No. 141, Michigan Avenue and Queens Chapel Road NE. Change of location: Box No. 131, moved from Michigan Avenue and Sargent Road NE. to Michigan Avenue and Twelfth Street NE.

Michigan Avenue and Twelfth Street NE.

Eleventh precinct.—New installation, connected overhead: Box No. 26, Fifteenth and V Streets SE.; box No. 133, Pennsylvania Avenue and Bowen Road SE. Change of location: Box No. 14 moved from Taylor and Jefferson Streets SE. to Seventeenth and W Streets SE.; box No. 22 moved from Suitland and Bowen Roads SE. to Suitland Road and District line SE.; box No. 32 moved from Bowen Road near Ridge Road SE. to Bowen Road and District line SE.

Subprecinct, Tenleytown.—New installation, connected overhead: Box No. 17, Thirty-seventh and Reservoir Streets NW.

One old booth box was replaced by a Gamewell wall box and the location changed.

One old booth box was replaced by a Gamewell wall box and the location changed from Suitland and Bowen Roads to Suitland Road and District line.

On July 1, 1915, the distribution of boxes among the precincts was as follows:

	Wall	Wall boxes.		
Precinct.	Under- ground.	Over- head.		
irst	31 26 46	1		3
ourth. Ifth kxth	32 29 26	5 10		3 3 2
eventh ighth finth	22 25 26	4 21		
enth   leventh   ubprecinct, Tenley	39	15 34 14	1 1 3	8 2
Total	311	104	5	4

#### FIRE-ALARM SYSTEM.

Twenty new fire-alarm boxes were placed in service during the year, 13 public and 7 private, located as follows:

#### Public boxes.

No. 285, Third Street and Rhode Island Avenue NW.

No. 354, Pennsylvania Avenue between Seventeenth and Eighteenth Streets NW.

No. 778, River Road and Chesapeake Street NW. No. 794, Belt Road and Garrison Street NW.

No. 796, Forty-first and Legation Streets NW.
No. 886, New Hampshire Avenue and Upshur Street NW.
No. 924, Nichols Avenue and Sumner Road SE.
No. 6115, Sixth and K Streets NE.
No. 6116, Sixth and F Streets NE.

No. 6134, South Dakota and Carlton Avenues NE.

No. 8119, Seventeenth Street and Park Road NW. No. 8123, Fourteenth and Kennedy Streets NW. No. 8125, Columbia Road and Warder Street NW.

#### Private boxes.

No. 356, St. Ann's Infant Asylum. Nos. 481 and 482, Bureau of Engraving and Printing (new building).

No. 716B, Georgetown University.

Nos. 941, 942, and 943, Government Hospital for the Insane.

One public box, No. 154, located in E Street between Fourteenth and Fifteenth Streets NW., was discontinued during the year.

During the year 15 fire-alarm boxes were changed from overhead to underground

connection.

Fire-alarm boxes in service.

	July 1, 1914.	July 1, 1915.
Connected by overhead wires: Public boxes.		
Private boxes. Connected by underground wires: Public boxes.	90 29	2
Public boxes	359 84	381 92
Total	562	58

Each fire-alarm box was tested several times during the year, the contact points cleaned, and the mechanism thoroughly overhauled. This is done regularly once a month as far as possible. The total number of tests amounted to 5,961, being an average of 10.259 per box.

Alarms received and transmitted: Regular box alarms. Alarms from telephone stations. Alarms from Mutual District Signal Service (local). Local alarms. Second alarms. Third alarms.	739 15
Total. False box alarms. False local alarms.	92

#### Alarms received by the month.

	Bo	x.	Loc	al.	Second	Third
Month.	Number.	Talse.	Number.	False.	alarm.	alarm.
						·
July		1	28		2	1
August	51	2	28		1	
September	37	9	33	· • • • • • • • • • • • • • • • • • • •	2	
October		11	39	•••••	• • • • • • • • • • • • • • • • • • • •	. 1
November		3	123	1	1	
December	84	12	65	1	1	1
1915.			i			
January	73	22	43	1	1	
February	55	1	61		2	1
March	82	1 8	141		3	2
April	71	2	128		1	1
Мау		3	25			
June	46	18	26	1	1	
Total	687	92	740	4	15	9

#### POLES.

Under the authority of the act of Congress approved June 30, 1902, regulating the use of telephone wires in the District of Columbia, the Chesapeake & Potomac Telephone Co. has reported the following amount of work done during the fiscal year:

Poles erected in streets within the prescribed area: Line		
Poles erected in alleys within the prescribed area:  Line	6	
Poles erected in streets outside the prescribed area: Line	10 8	
Poles erected in alleys outside the prescribed area:  Line	148 8 51	
Total	••••	388
Poles taken down in streets within the prescribed area: Line Poles taken down in alleys within the prescribed area: Line Guy Anchor	20 3	
Poles taken down in streets outside the prescribed area:  Line.  Guy.  Anchors.	7	
Poles taken down in alleys outside the prescribed area:  Line	7	<b>3</b> 5
Total  Total erected during the year  Total taken down during the year	: 	388
Net increase		269

### Miscellaneous pole work-Poles erected, taken down, moved, etc.

	E	recte	d.	Tak	en d	wn.	Mo	ved.	R	e- ced.	Re	et.	Ir		De	_
	Line.	Guy.	Anchor.	Line.	Guy.	Anchor.	Line.	Guy.	Line.	Guy.	Line.	Ouy.	Line.	Quy.	Line.	Ouy.
Chesapeake & Potomac Telephone Co Potomac Electric Power Co Western Union Telegraph Co District of Columbia. Baltimore & Washington Transit Co	303 438 1 3		61 174	96 69 124 38	16	2	53 43	4	187 444 2		21 6	1	207 369	7 31 	123 35	
Capital Traction Co Columbia Ry. Co. Washington & Maryland Ry. Co. Georgetown & Tenleytown Ry. Co. Washington Interurban.	2  1 91		••••	46	1	7	25		3		••••	••••	1 1 45			1
Total	839	60	235	374	39	22	122	4	636	11	27	1	623	38	158	Ľ

# List of poles of all kinds July 1, 1915.

	Line.	Guy.	Total,
District of Columbia.	523	15	524
nited States Government	207	1 7	-
hesapeake & Potomac Telephone Co.	6.025	642	4.65
otomac Electric Power Co		170	in
Vestern Union Telegraph Co	914	1	914
ostal Telegraph-Cable Co	356	1	94
rightwood Ry. Co.	340		34
alumbia Pu Co	461		-
olumbia Ry. Co. .nacostia & Potomac Ry. Co.	301		_
ity & Suburban Ry. Co.	86		
Accordance & Mariantana D	304		30
eorgetown & Tenleytown Ry, Co.	208		20
apital Ry. Co.	208		
Vashington & Baltimore Transit Co.	30		3
In Indian Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Comp	158	[	13
apital Traction Co	203		20
Våshington & Glen Echo Ry. Co. team railroads	8		
team railroads	545		54
Vashington & Great Falls R. R. Co	401	1 1	40
Vashington Interurban Ry. Co	185	4	. 19
Total	16,701	846	17,54

#### ELECTRIC-WIRING INSPECTION.

The following tables show the amount of work performed by this department is connection with the electrical wiring inspection:

Permits issued by the inspector of buildings authorizing electrical wiring:

Buildings

Machinery	1, 225
Signs	73
	1, 483
Permits issued by the electrical department:	
For inside electrical work	2, 185
For outside electrical work.	192
Temporary permits	<b>26</b> 3
Without fee.	801
Building permits	663
Quarterly	73
Gas lamps outside	123
•	

Certificates issued: Final Without fee. Preliminary.	3, 036 32 4
	3, 072
Lamps and apparatus installed:	
Incandescent.	77, 485
Arc lamps.	77, 480 80
Miscellaneous.	4, 703
Blank outlets	759
Motors	590
Total horsepower of motors	2, 083, 14
Generators	2, 083. 11 12
Generators	390
Defective wiring reported by inspectors	343
Defective wiring reported by inspectors.  Notices of defective wiring sent.	1, 423
Requests for inspection	21
Miscellaneous	78
Inspections in connection with yearly license	191
73	
Fees paid to the collector of taxes:	
For permits	\$4,044.00
For certificates	
Miscellaneous	1.00
For 257 copies Rules and Regulations, at 20 cents each	19. <b>00</b> 77. 10
For 207 copies rules and regulations, at 50 cents each	77. 10
•	5, 860. 10
Work of inspectors of electric wiring from July 1, 1914, to June 30, 19.	15.
T	
Inspections in private buildings	13, 357
Inspections in municipal buildings	637
Inspections in United States Government buildings. Inspections in theaters.	2 1, 823
Matal immediana	70.075
Total inspections	13, 819

#### MISCELLANEOUS WORK.

This department prepared plans and specifications for and supervised the introduction of electrical installation in the following municipal properties:

#### Completed work.

Police station No. 3, lighting of garage and wagon shed.

Engine houses:

No. 9, lighting system. No. 10, lighting system. No. 7, lighting system. No. 5, lighting system. No. 11, lighting system. No. 18, extensions and repairs. No. 24, extensions and repairs.

No. 16, motor installation. Truck house No. 3, lighting system. Schools:

Miner Normal, clock and bell system. Chevy Chase, stereoptican outlet. S. J. Thomson, extensions and repairs.

#### Completed work—Continued.

Schools-Continued.

Franklin, extensions.

J. O. Wilson, lighting system.
Wisconsin Avenue, glue heater.
Street-cleaning stables (NW.), motor installation.

Public library, stereopticon outlet. Smallpox hospital (3 buildings), lighting systems.

Crematorium, motor installation.

National Training School for Boys, lighting system.

Asphalt plant, lighting system.

Convenience stations:

No. 1, bell wiring. No. 2, bell wiring.

No. 3, bell wiring.

#### Completed work—Continued.

Convenience stations—Continued.

No. 1, time stamp and clock wiring. No. 2, time stamp and clock wiring.

No. 3, time stamp and clock wiring. Engineer department blacksmith shop,

lighting system.

#### Work in progress.

Engine houses:

No. 6, lighting system.

No. 16, extensions and repairs.

Schools:

New Central High, supervision and inspection only.

Business High, extensions and repairs.

Western High, lighting system and miscellaneous conduits

Grover Cleveland, alterations to motor equipment.

Farmer's Market, lighting system.

Water department garage, lighting sys-

Tuberculosis Hospital (superintendent's residence) lighting system.

#### Work done by electrical department.

Police stations:

No. 2, repairs to lighting system.

No. 3, repairs to lighting system.

No. 6, repairs to lighting system. No. 8, repairs to lighting system.

No. 3 truck house, repairs to lighting system.

No. 8 engine house, repairs to lighting system.

Schools:

Force, motor tests.

Wisconsin Avenue, repairs to lighting system.

Blow, motor tests.

Normal No. 2, lighting tests.

M Street High, repairs to laboratory equipment.

Work done by electrical department—Con.

Schools—Continued.

Henry D. Cooke, repairs to lighting system.

Miner Normal, motor tests.

No. 3 convenience station, repairs to lighting system.

Eastern Market, repairs to lighting sys-

tem.

Jail, lighting tests.

Engineer department stables, repairs to lighting system.

Minnesota Avenue pumping station, hydrograph tests.

Tuberculosis Hospital, motor tests.

Bryant Street pumping station, generator tests.

#### Plans and specifications prepared, work not started.

Police stations:

No. 3, cell lighting.

Harbor, patrol-boat lighting.

No. 12 engine house, lighting system. Schools:

Franklin, alterations and extensions. Garfield, lighting system.

No. 174. lighting and power system. Smallwood, power system and lighting system

Business High, estimates on costs and report as to advisability of obtaining current from the McKinley plant and fuse data for requisition. rockland, estimates — "Pathe-

Brockland,

scope" outlet.
Park View, lighting system. Occoquan wharf, electric wiring.

Eastern Market, changes in switch control.

Jail, lighting system and laundry iron outlets.

Cement warehouse, bag-cleaning device. Home for Aged and Infirm, underground

electric-feeder system. Colored Industrial School, underground electric-feeder system.

#### LIGHTING.

#### Receipts.

Appropriation	\$395, 000, 00
Repayments by Baltimore & Ohio R. R. Co	341. 49
Repayments by Georgetown Barge, Dock, Elevator & R. R. Co	<b>520</b> . 88
Repayments by Washington Terminal Co	<sup>1</sup> 3, 824, 55
Repayments by Philadelphia, Baltimore & Washington R. R. Co	<sup>1</sup> 5, 837, 51
Repayments, miscellaneous	115. 11
•	

1 Due, but not paid.

Expenditures. Mantle gas lighting: \$164, 732.84 Georgetown Gas Light Co..... 10, 363. 32 Deductions for defective service..... 2.68 10, 360, 64 Incandescent electric lighting: Deductions for defective service..... 240, 70 117, 882. 89 Electric arc lighting:
Potomac Electric Power Co....
Deductions for defective service..... 79, 964. 96 613.44 79, 351, 52 Street designation lighting: Washington Gas Light Co..... 3, 797. 51 Deductions for defective service..... . 30 3, 797. 21 Georgetown Gas Light Co..... 249, 99 No deductions. 249.99 Potomac Electric Power Co..... 718.70 Deductions for defective service..... 1.01 717, 69 Lamp-posts, globes, etc.
Inspection of lamp-post castings. 9, 193. 06 221, 15 Street-sign frames, etc.
Erecting, moving, and taking down lamp-posts. 1, 715. 99 608.00 Paints, oils, etc.
Office and traveling expenses. 98.68 101.63 Repairs to pavements.

Cartage. 227. 76 52, 50 101.00 89.64 Rent of storeroom..... 210.00 16.97 Freight and expressage..... Tools and hardware. 16.44 Car tickets. 40.00 Telegraph and telephone messages..... 4.83 Trimming trees.
Patterns (repairs to). 199.76 196.30 Miscellaneous 64.30 Labor pay roll..... 4, 700. 07 394, 950, 86 GENERAL SUPPLIES. Receipts. Total..... 11, 824. 67 Expenditures. Office expenses..... \$1,608.89 3, 833. 38 Telephone rental, etc..... Instruments and apparatus.
Cable 1, 127. 76 1, 193. 75 Labor pay roll..... 1, 177. 50 Storeroom rental..... 600,00 Stable expenses..... 461, 41

Wire	\$499, 14
Line supplies	176. 51
Tools and hardware	101. 46
Motorcycle and automobile repairs.	8.80
Batteries and battery supplies	181. 99
Repairs to pevements.	154. 80
Maintenance of engineer stables.	252. 97
Paints	55. 23
Car tickets.	110.00
Gas and electric current	62. 26
Travel expense	8. 75
Cartage, freight, and expressage	27. 09
Conduit supplies	16. 95
Miscellaneous	37. 20
Total	11, 695. 84
WIRES UNDERGROUND.	
Receipts.	
Appropriation	<b>\$</b> 2, 000. 00
AppropriationRepayments	629. 80
<del>-</del>	
Total	7, 629. 80
Expenditures.	
Cable	<b>\$</b> 7, 703. 44
Underground construction	1, 304. 57
Labor pay roll	1, 753. 77
Tools and hardware	32. 60
Repairs to pavements	1, 324. 27
Posts for fire-alarm and police boxes.	99. 98
Wire	19. 58
Line supplies.	31. 50
Underground supplies	107. 65
Miscellaneous	1. 91
-	
Total	7, 379. 27
EXTENSION OF POLICE PATROL.	
Receipts.	
210007001	
AppropriationRepayments	\$3,000.00
Renayments	78. 47
Total	3, 078. 47
Pom an distring	
Expenditures.	
Cable	\$391.50
Conduit supplies	543. 36
Labor pay roll	511. 63
Posts for police patrol boxes.	558.06
Wire	375. 97
Line supplies.	42. 75
Tools and hardware.	7. 18
Instruments and apparatus.	319. 50
Repairs to pavements	280. 17
Trobarts of basemento	
Total	3, 030. 12

\$2,000,00

#### FIRE-ALARM BOXES.

#### Receipts.

Repayments	14. 59
Total	2, 014. 59
Expenditures.	
Cable Conduit supplies. Labor pay roll. Wire. Fire-alarm boxes. Posts for fire-alarm boxes. Tools and hardware. Repairs to pavements.  Total.	\$348. 00 100. 97 339. 31 105. 94 750. 00 144. 55 4. 88 54. 11
REPORT OF THE CHIEF CLERK OF THE ENGINEER DEPA	RTMENT.
WASHINGTON, D. C., October Sire: I have the honor to submit the following report of the operations of for the fiscal year ended June 30, 1915:  Communications received, briefed, recorded, and indexed	of this office 12, 875 379 270
The tables accompanying this report show—	

1. The expenditures from general appropriations for forage, horses, wagons, carts, etc.
2. Statement of contracts entered into during the year.

3. Schedule of proposals received during the year.

Very respectfully,

Annmoriation

DANIEL E. GARGES, Chief Clerk, Engineer Department.

Maj. C. W. Kutz, Corps of Engineers, United States Army, Engineer Commissioner, District of Columbia.

Statement of expenditures from general appropriation for forage, horses, wagons, carts, etc., fiscal year 1915.

Surveyor's office	\$471, 29
Assessment and permit work, streets	1, 454, 98
Georgetown schedule	248. 76
Northwest schedule	368, 74
Southwest schedule	117. 62
Southeast schedule	429, 27
Northeast schedule	355, 81
P Street NW., between Rock Creek and Twenty-eighth Street	42. 96
Conding streets and and a code and I welly-eight bireet	
Grading streets, alleys, and roads	15. 91
Nichola Avenue	34. 37
Repairs to streets	4, 767. 32
Sidewalks and curbs	9. 30
Repairs to suburban roads	468. 31
Construction and repair, bridges	628, 54
Construction, county roads and suburban streets	858, 59
Cleaning and repairing sewers and basins	8, 758, 45
Main and pipe sewers	1, 032, 15
Suburban sewers	807. 15
Assessment and permit, sewers	
Anacostia main interceptor	157.00
this costs man indicolor.	ın∕.uu

Rock Creek main interceptor	\$126.11
Repairs to schools	
Repairs to police stations.	55. 68
Repairs to engine houses.	154, 27
Pennsylvania Avenue Bridge.	152 16
Benning Road viaduct and bridge	123. 99
School, west of Soldiers' Home, No. 175.	22. 14
Engine company, Tennallytown, No. 28.	35. 71
General supplies, electrical department	591.59
Lighting, electrical department.	188. 10
Care and improvement, Rock Creek Park	348.04
	2, 865. 84
Parking commission	
General expenses, water department.	1, 608. 93
High service, water department	6, 401. 28
Street cleaning	181. <b>6</b> 2

# STATEMENT OF CONTRACTS.

# Contracts entered into by the District of Columbia during the fiscal year 1915.

#### 1. HIGHWAY IMPROVEMENTS.

No.	Name of contractor.	Nature of contract.
5679 5681 5684 5685 5710 5714 5735		Sheet asphalt and asphaltic concrete pavements. Laying cement sidewal's, 1915. Grading Hunt Place and Grant Street NE. Grading Otla and Twenty-fourth Streets NE. Grading Otla and Twenty-fourth Streets NE. Do. Constructing Pennsylvania Avenue Bridge over Rock Cresk. Grading Shepherd Street NW. Grading Shepherd Street NW. Grading over the thinty of Chesapeake Junction. Grading west entrance to Q Street Bridge. Grading south approach to Anacostia Bridge. Sheet asphalt payements.

#### 2. SEWER CONSTRUCTION.

5653 5654 5657 5669 5673 5674	William F. Cushdo Warren F. Brenizer Co. James W. Bean Contracting Co Whiting-Turner Construction Co James W. Bean Contracting Co	Maryland Avenue trunk sewer, section 3.  Rock Creek main intercepting sewer, section 6.  Murdock Mill Road, etc.  Rock Creek main intercepting sewer, section B of section 6  Broad Branch Road, etc.
5678 5682	George Hyman	Sigsbee Place, etc. Klingle Street, etc.
5683	James W. Dean Contracting Co	Eighteenth Street and New York Avenue.
5686	George Hyman	Decatur Street and Iowa Avenue
5689	James W. Bean Contracting Co	T and Thirty-fifth Streets and Wisconsin Avenue.
5690	Warren F. Brenizer Co	Varnum Street.
5693	George Hyman	Fourteenth Street, Arkansas Avenue, etc.
5694	do	Upshur Street, etc.
5699	William F. Cush	Zoological Park.
5702	James W. Bean Contracting Co	A Street.
5703	do	Pinehurst outlet sewer, section 2.
5722	George Hyman	Hillbrook service sewers.
5723	Warren F. Brenizer Co	Pinenurst service sewers.
5725	warren F. Brenizer Codo	
5726 5727	do	
5730	do	Eighteenth and H Streets NW
5733	do	Georgia Avenue trunk sewer.
5744	George Hyman	Porter Street storm-water sewer.
5750	Warren F. Brenizer Co	Arizona Avenue trunk sewer.
5787	do	
5788	do	College Pond trunk sewer, sections 1 and 2.
	do	
	do	Third and North Capitol Streets, etc.
5795	do	Connecticut Avenue, alley of square 155, etc.
5796	do	
5797	George Hymando	Connecticut Avenue oto
5798	uv	Connecticut Avenue, etc.
	1	

# Contracts entered into by the District of Columbia during the fiscal year 1915—Contd.

# 3. MATERIAL AND HAULING.

No.	Name of contractor.	Nature of contract.
5549	Sun Co	Road oil.
5560	Sun CoBarrett Manufacturing Co	Do.
5557	Barber Asphalt Paving Co	Do.
5558	Texas Co	Do.
5875	James W. Bean Contracting Co	
5579	Central Foundry Co	Miscellaneous castings.
5582	Sun Co	Asphalt paving coment.
5592	Security Cement & Lime Co	Portland cement.
5593	Morgantown Brick Co	Sewer invert brick.
5598	North Carolina Granite Corporation	Granite curb.
5601	Fred J. White	Miscellaneous castings.
5607	Washington Steel & Ordnance Co	Do.
5620	Baltimore Clay Products Co	Vitrified paving block.
5628	W. P. Taylor Co	Miscellaneous castines.
5637	American Sewer Pipe Co	Terra-cotta sewer pipe.
5639	Washington Asphalt Block & Tile Co.	Asphalt paving block.
5640	Mary S. Mann	Hauling for schools.
5645	Lewis E. Smoot	Sand.
5662	Lynchburg Foundry Co	Cast-iron water pipe specials.
5663		Cast-iron water pipe.
5687	Frederick Brick Works	Red sewer brick.
5688	Standard Cast Iron Pipe & Foundry Co.	Cast-iron water pipe.
5715	Western Bleatric Co	Combination cable.
5732	United States Asphalt Refining Co	Road oil.
5734	L. Vogelstein & Co	Pig lead.
5743	Manhattan Supply Co	Pipe fittings for water department.
5764	National Mortar Co	Portland cement.
5774	Security Cement & Lime Co Glamorgan Pipe & Foundry Co	Limestone and limestone dust.
5776	Glamorgan Pipe & Foundry Co	Water pipe for workhouse.
5779	Standard Lime & Stone Co	Trap rock.
5781	Lewis E. Smoot	Sand and gravel.
5786	Columbia Granite and Dredging Co	Do.
5799	Rupp Reng	Hauling broken stone and screenings
5804	Frederick Brick Works	Red sewer brick.
5810	Standard Oil Co	Asphalt paving cement.
5811	Washington Asphalt Block & Tile Co.	Asphalt paving block.
5814	National Fire Proofing Co	

#### 4. BUILDING AND BUILDING REPAIRS.

5630	Semuel A. Gregory	Repairing furnaces, etc., in public-school buildings.
5647	Biggs Heating Co	Heating system, Webster School.
5060	William E. Mooney	Constructing shelters, etc., Farmers' Produce Market.
5670	A. P. Ulrich Co	Installing additional radiation to heating system. Frank-
	,	lin School Building.
5680	Biggs Heating Co	Installing piping at fail.
5692		Constructing columns and girders for superstructure.
		Poplar Point sewer substation.
5708	Richardson & Burgess (Inc.)	Reconstructing Western High School.
5709	Phillip F. Gormley	Excavations, foundations, etc., colored high school, No. 174.
5719	Melton Construction Co	Constructing repair shop for water department.
5721		Driving piles at colored high school, No. 174.
5724	W. D. Murray & Co	Reconstructing fish wharves
5729	Standard Electric Time Co	Clock and bell systems, Armstrong Manual Training School,
5737	Monarch Ventilator Co	Heating system, Western High School.
5742	Henry B. Davis	Cell work, police station No. 3.
5749	William E. Mooney	Constructing residence for superintendent of Tubercu-
0.13		losis Hospital.
5753	Capital Electric Co	Electrical work, Western High School.
5750	Charles A. Langley	Carpenter work, Western High School.
5763	Melton Construction Co.	Constructing Park View School, No. 175.
5767	James Linskey & Sons	Painting, etc., Western High School.
5768	Murray Bros	Plastering work, Western High School.
5772	W G Cornell Co	Plumbing work, Western High School.
0112	W. G. COLLEGE CO	riumumg work, western righ School.

# 5. GENERAL SUPPLIES.

5552 5553 5554 5556 5559 5560 5561	W. M. Galt & Co. George E. Walker. Manhattan Coffee Mills. Eagle Pencil Co. Albert L. Johnson J. B. Kendall Co. R. P. Clarke Co. Barber & Ross. Texas Co.	Lumber. Coffee, etc. Stationery. Hardware. Saddlery. Stationery, dry goods, etc. Hardware, peints, automobile supplies, and offs.
------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------

# Contracts entered into by the District of Columbia during the fiscal year 1915—Contd. 5. GENERAL SUPPLIES--Continued.

۰.	Name of contractor.	Nature of contract.
3	Washington Tobacco Co	Tobacco.
4	Rudolph & West Co	Hardware, paints, and automobile supplies.
16	Joseph Dixon Crucible Co	Stationery and kindergarten supplies,
18	Charles T. Robinson	Hardware.
19	Lansburgh & Bro	Furniture and dry goods.
no	Miller & Graham	Paints and oils and inbricants.
2	J. W. Hunt & Co	Bread.
3	Holbrook Manufacturing Co	Groceries.
4	Cuyler & Monier	Plumbing supplies.
6	Wm. A. H. Church	Stationery, hardware, paints, etc.
8	George F. Muth & Co	Groceries and meats.
	Wilson-Maltman Co	Electrical supplies.
1	American Ice Co'	Ice, Do,
١	Thos. Somerville Co	Hardware and plumbing material.
1	R. Carter Ballantyne	Stationery, schoolbooks, etc.
!	Thos. W. Smith	Lumber.
3	James B. Lambie Co. (Inc.)	Hardware, plumbing supplies, addiery, etc. Electrical supplies.
	B. F. Goodrich Co.	Stationery, plumbing material, and automobile suppli
.	Standard Oil Co	Oils and lubricants.
!	W. T. Galliher & Bro	Lumber.
}	A. G. Spalding & Bro	Athletic goods. Furniture and dry goods.
6	Fred A. Schmidt	Stationery, hardware, paints, etc.
1	Guy, Curran & Co	
	Washburn-Crosby Co	Forage.
	Crane Co.	Groceries, drugs, and meats. Plumbing material.
1	Morris & Co	Groceries and meats.
Į	W. S. Hoge & Bro	Forage.
l	Globe-Wernieke Co	Stationery and furniture. House furnishings, hardware, and paints.
١	Lutz & Co	Saddlery.
	Louis Hartig	Hardware, plumbing supplies, etc.
	National Electrical Supply Co	Electrical and automobile supplies.
	Valvoline Oil Co. Mathers-Lamm Paper Co.	Oils and lubricants. Stationery.
l	Harry Kaulman	Shoes and dry goods.
I	Galliber & Huguely	Lumber.
۱	H. Mueller Manufacturing Co Martin Wiegand	Plumbing supplies. Furniture and lumber.
۱	Z. D. Gilman	Drugs and saddlery.
١	Browning & Middleton	Orocerles.
١	Swift & Co	Groceries and meats. Groceries.
	F. A. Denison & Co. R. P. Andrews Paper Co.	Stationery.
1	Chas. G. Stott & Co	Do.
1	Frank Hume (Inc.)	Groceries.
5	J. Edward Chapman	Drugs, Fuel.
3	James F. Oyster	Groceries.
1	Chesley & Harveycutter	Automobile supplies.
1	Milton Bradley Commercial Coal Co.	Stationery, schoolbooks, kindergarten supplies, etc. Fuel.
۱ ا	L. P. Steuart & Bro	Do.
1	Hugh Reilly Co	Paints.
1	J. Maury Dove Co	Fuel. Do.
	John P. Agnew & Co.	Do. Do.
1	W. A. Smoot & Co	Do.
1	Charles Scribner's Sons	-Schoolbooks.
	Macmillan Co	Do. Forage.
8	C. F. Wilkins & Co.	Do.
3	Washburn-Crosby Co	Do.
5	W. S. Hoge & Bro	Do.
0	Thomas W. Smith	Lumber.
4	Wm. A. H. Church	Do.
5	Wm. Hahn & Co	Shoes.
3	A. G. Spalding & Bros	Amieuc goods.
1	L. P. Steuart & Bro	Do.
	Houghton Mifflin Co	Schoolbooks.
١	American Flag Co	Flags.
	American Flag Co	Schoolbooks.
	American Flag Co. Charles Scribner's Sons. Lansburgh & Bro. Commercial Coal Co. L. P. Steuart & Bro.	Schoolbooks. Furniture and dry goods. Fuel.

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# Contracts entered into by the District of Columbia during the fiscal-year 1915—Contd. 5.(GENNERALL:SUPPLIES.—Continued.

No.	Name of contractor.	'Nature of contract.
5780 5782 5784 5789 5790 5800 5802 5802 5803 5805 5812 5813 5815 5816	W. A. Smoot & Co. J. Maury Dove Co. W. T. Galliher & Bro. Grane Go. J. Edward Chapman Harry Katifman. W. B. Moses & Sons. A. W. Harris Oil Co. Destiledgy-Hill Electric Co. Standard Oil Co. Rudolph & West Co. Miller & Graham. Albert L. Johnson. John P. Agnew & Co. Lutz & Co.	Do. LumberPlembing supplies. Fuel. Shoes and dry goods. Furniture. Oils and lubricants. Electrical supplies. Oils and lubricants. Hardware. Paints, Oils, and lubricants. Hardware. Hardware.

#### 6. MISCELLANEOUS.

4565	Lewis Hoptenmaler	Purchase of old material.
4580	Capitol Towel Service Co	Laundry work.
5596	A. P. Smith Manufacturing Co	Fire hydrente
5006	Fred S. Giebner.	
5610	Tolman Laundry	Laundry work.
-6624	David Notes	Auctioneer services.
5625	White House Lunch	Sandwiches and coffee for police court.
5629	Marvin S. Young Co	Printing.
5636	Moorman Drayage Co	Removing refuse from markets.
5644	John W. Green	Milk and cream.
5650	John W. Gregg	
<b>5656</b>		
5659	International Steam Rump Co	Pumps and motors for sewer division.
<b>56</b> 61	Narragansett Machine Co	Playground equipment.
5664	A. G. Spalding & Bros	Do.
	Mitchell Antemobile Agency	Automobile for commissioners.
5665	Wm. P. Bernhart & Co	Automobile for police department.
5666	Durand Steel Locker Co	
5667	Henry R. Worthington	Water meters.
5668	Heine Safety Boiler Co	Installing boiler at Public Library.
5672	Marvin S. Young Co	
5677	Amandus F. Jorss	Metal tree guards.
5601	Irwin 8. Osborn	Investigation and report on method of disposing of city
	l	wastes.
5005	Heinterson-Rowe Auto Co	
<b>570</b> 0	Michael R. Ready	Collecting and disposing of miscellaneous refuse.
<b>570</b> 1	Charles F. Mann	Collecting and disposing of dead animals.
-5704	James W. Bean Contracting Co	Collecting and disposing of ashes.
5706	American Fence Construction Co	Constructing sence at Cardoso playground.
<b>:57</b> 07	Washington Fertilizer Co	Collecting and disposing of garbage.
<i>5</i> 711	L. G. Kelly Printing Co	Collecting and disposing of garbage. Printing tax list.
5712	Narragansett Machine Co	Gymnasium equipment, Normal School No. 169.
.5713	Morris Iron & Steel Co	.Lamp-posts.
5716	Leon E. Dessez	Preparation of plans and specifications for Gallinger Hos-
	· _ · _ '	pital.
· <b>87</b> 17	·F. G. Smith Pieno Co	Pianes fer public schools.
5718	Gramm-Bernstein Co	Motor truck for water department.
5728	Arthur Bryant	Purchase of oyster shells at fish wharf.
5731	Front Drive Moter Co	Installing tractors on aerial trucks.
5736	National Electrical Supply Co	Switchboard for Poplar Point sewer substation.
5738	National Electrical Supply Co Manhattan Rubber Co	Fire hose.
5739	Charles H. Ehrhardt	Chepatring school playeround equipment.
- <b>5740</b> -	-General Firepreeung Co	Library equipment, Normal School No. 169.
5745	8. A. Gaskins & Son	Constructing swimming pools, Rosedale and Howard play-
		grounds.
.5746	James W. Beam Contracting Co	Constructing swimming pool, Georgetown playground.
5747	James W. Bear Contracting Co	Removing ashes from municipal buildings.
5748	Morris Iron & Steel Co	lamp posts and accessories.
<b>.575</b> 2	Shepherd Engineering Co	Engine for sewer division.
. 5761	Lowis Heptenmaier	Purchase of old material.
5762	Combs-Howard Co	Motor truck for Fire Department.
5769	West End Laundry	Laundry work.
5771	West End Laundry	Laundry work.
5783	Marvin S. Young Co	Printing work.
8785	Samuel A. Gregory	Repairing furnaces, etc., in public schools.
5790	American-La France Fire Engine Co.	Motor-driven fire engine and combination chemical and
		hose wagon.
5793	Pront Drive Moter Co	Extra parts for tractors.
5806	American-La France Fire Engine Co.	Extra parts for fire engine.
6807	Good Roads Machinery Co	Road roller for surface division.
5817	Chas. Hvass & Co	Two street-cleaning machines.
5618	Standard Underground Cable Co	Telephone cable.

# SCHEDULE OF PROPOSALS RECEIVED DURING THE YEAR.

|Star (\*) indicates proposal accepted.}

#### 1. HIGHWAY IMPROVEMENTS.

# Paving streets and avenues with sheet asphalt and asphaltic concrete.

#### [Opened Aug. 18, 1914.]

Items.	Bidders.	
Items.	Whiting- Turner Construc- tion Co.	Cranford Paving Co.*
1. Laying standard asphalt pavement: (a)	1 \$1.75	\$1.78 1.71
2. Laying vitrified, with 6-inch concrete baseper square yard of block		1.35
3. Laying asphaltic concrete pavement (concrete base)	11:75	41.66
4. Laying asphaltic concrete pavement (broken stone base)per square yard  Allowance to be made District of Columbia for Occoquan stone furnished at District of	1.93	{ 2.96 3.93
Columbia Wharf, Tenth and Water Streetsper cubic yard	.83	.90

<sup>1</sup> Arniesite.

2 Class A.

8 Class B.

#### Laying asphalt block pavements.

#### [Opened Aug. 18, 1914. Bidder: Washington Asphalt Block & Tile Co.]

#### Laying cement sidewalks in the District of Columbia.

#### (Opened Aug. 28, 1914.)

	Bidders.					
Items.	E. G. Gum- mel.*	Cranford Paving Co.	Harper & Voigt Co.	Warren F. Brenizer Co.	Bernard S. Boyle,	
Class A per square yard Class B do	\$0.96 1.16	\$1.11 1.29	\$1.03\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\$0.97 1.18	\$1.50	

#### Grading certain streets in the District of Columbia.

#### [Opened Aug. 28, 1914."

	Bidders.									
Items.	H. M. Lan- ford.	T. B. Now- land, M. J. Fahey.		Harper & Voigt	L, M. John- ston.	Geo. Hy- man.	G. B. Mullin Co.	War- ren F. Breni- zer Co.	Martin Dodge.	
Otis Street NE., per cubic yard	Cents.	Cents. 291	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	
Twenty-fourth Street NE., per cubic yard	36}		30			34	* 271	29		
Forty-first Street NW., per cubic yard	<b></b> .		33	+ 27]		34	32	30		
NE., per cubic yard	321		42	421		44	39	+ 32		

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# Grading and improving suburban streets and avenues.

#### [Opened Aug. 81, 1914.].

	Bidders.						
Items.	WarrenF. Brenizer Co.*	E. G. Gummel.	G. B. Mullin Co.	Cranford Paving Co. (group A).	Harper & Volgt-		
Grading	\$0.39	\$0.87	\$0.43	\$0.57	\$0.41		
per linear foot	.33	. 29	.30	.30	. 35		
Setting 8 by 8 inch granite curbper linear foot	.85	.35	.37	.36	.35		
Paving or repaving cobble or granite block gutters,		٠					
per square yard	.38	.39	.40	.45	.42		
Paving vitrified block gutters on gravel base, per			. 10		. 12		
square yard	.60	.70	.74	.60	.69		
Paving vitrified block gutters on 3-inch concrete base,		•••					
per square yard	.80	1.15	1.50	1.10	1.19		
Cement curb with cement gutterper linear foot	.80	.95	.53	****	.50		
Cement curb without cement gutterdo	.49	.55	.50		.55		
18-inch cement gutterdo	.31	.45	.40		.31		
24-inch cement gutter	.38	.55	. 454		.42		
Cament concrete roadwayper square yard	.83	.90	.94	.93	.82		
Furnishing and hauling bank gravel for roadway,		ا تعا		ا ۵۰۰	.00		
per cubic yard		1.25	.99		.70		
her canal are	l						

Norg.—Award made to Harper & Voigt for group A (cement readways; and to Warren F. Brenizer for group B (macadam readways).

#### Construction of the Pennsylvania Avenue Bridge across Rock Creek.

# [Opened Nov. 17, 1914.]

	Items.									
Bidders.	No. 1. Earth exca-	No. 2. Rock exca- vation per cubic yard.	Rock ry ex- exca- ation cava- tion per uble ry ex-	No. 4.—Price bridge complete, excep roadway and lamp posts, tracks and items 1, 2, and 3.						
	vation per cubic yard.			Bid A.	Bid B1.	Bid B2.	Bid B3.			
Hardaway Contracting Co.*	\$0.75	\$3.00	\$3.00	\$60, 500. 00	\$69, 500. 00	\$70, 500. 00	\$87, 500. 00			
A. L. Guidone & Co	2.00		5.00	82, 300, 0u	91, 500, 00	101, 500, 00	139, 500, 00			
Barraghi-Vought Co	1.00		2.00	63, 245, 00	73, 953. 00	73,953.00	92, 556, 00			
Lou B. Cleveland *	1.00		4.00	58, 750. 00	74,321.00	83,084.00	93, 544. 00			
MacArthur Bros. Co	2.00 12.00		6.00 20.00	70,500.00	85,033.00	92, 200.00	100, 400. 00			
Conners Bros. Co		4.00	4, 00	71 750 00	90, 350.00	02 650 00	109, 800. 00 103, 100. 00			
Interstate Construction Co		6.00	15.00	87 521 00	108 725 00	120 527 00	130, 357. 00			
O. P. Allen Construction Co			6.50	66, 600, 00	100, 700.00	120,007.00	130, 357.00			
Snare & Triest Co	1.50		9.00			105 000 00	116,000.00			
Ward & Tully (Inc.)		4.00	5,00	103, 300, 00	118, 300, 00	127, 000, 00	137,000.00			
Merrill-Ruckgaber Co		10.00	10.00	73, 000. 00	83,000.00	91,000.00	101,000.00			
Merrill-Ruckgaber Co	2.00	4.00	3.00	102, 200, 00	114, 200, 00	124, 400, 00	135, 000, 00			
O'Brien Construction Co	1.00	5.00	4. 00	75,000.00	85,000.00	95,000.00	106,000.00			
I. Hankins	1.20	5.80	5.80	86,000.00	99,000.00	104,000.00	114,000.00			
Whiting Turner Construction Co	1.50	4.00	10.00			88, 400. 00	95,000.00			
Charles Fath & Co	. 50		15.00	75,000.00	89,000.00	97, 000.00	106, 200. 00			
Willard-Boggs & Co	. 60	5.00	5.00	92, 300. 00	110,000.00	116, 500. 00	125, 600. 00			
Penn Bridge Co.*	1.00	2.50	3.00	53, 700. 00	68, 300. 00	77,300.00	88, 400. 00			
Davis Construction Co. (Inc.)	. 60 2. 50	4.00 5.00	5.00 12.00			51,281.00	90,384.00			
W. H. H. Allen Construction Co	2.50 1.25	7.00	5.00	77, 527, 45	92 000 00	90,730.10	100, 285. 10 103, 300, 00			
M. F. Comer & Co.*		4.00	4.50	57, 820, 00			92, 530, 00			
U, B, CIBIR & CO.*	1.20	1.00	1.00	31,020.00	12,010.00	o1,000.00	92, 330.00			

<sup>•</sup> See bid for alternates on stone.

# Grading Shepherd:Street N.W., from Sistemth Street to Piney Branch Road. [Opened-Dec. 39, 1984]

Bidders.	cubic yard.
J. B. Latimer	
Harper & Voigt *	26) 17( 20) 25 18) 27
Wm. F. Cush O. P. Allen Construction Co. (Inc.).	2017
G. B. Mullin Co.	23 192
Dogan & Globin	27
Warren F. Braniser Co.	24
Geo. Hyman	174
Otto Unger	201
E. G. Gummel	19
Grading roadway omline of cartain streets, between Division Avenue NE., an line near Chesapeake Junction.	d the district
[Opened Mar. 15, 1916.]	
	Cents per
Bidders: Chesapeake Construction Co	ouble yard.
Harper & Voigt Co	35
Warner F. Brenizer Co.	2
Geo. Hyman	3
Wm. F. Cush	58
R. P. Denby	44
G. B. Mallin	27
F. B. Beasman & Co. E. G. Gummel	
Grading the west approach of the Q Street Bridge.	
[Opened Apr. 18, 1915.],	
Jeb complete: Geo. Hyman	Cents.
J. B. Latimer.	
Wm. F. Cush *	
Grading south approach to Anacostia Bridge.	
[Opened Apr. 28, 1217.]	
Greating (per cobie-yard):	Cents
Wm. F. Cush	
Geo. Hyman *	39
Harper & Voigt	55
Laying asphalt blook pavements.	
[Opened May 21; 1915;]	
Washington Asphalt Block of TR4-Co.:  1. Laying 2-inch asphalt block pavement on a 6-inch concrete base	eyadı. \$1.71 de 1.61 i Water eyadi90

# OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

# Paving streets and avenues with sheet asphalt.

[Ottoped May 21, 1915.]

_	(a paramatay ob, cook)				
			Bidd	lers.	
	Items.	Eastern Paving Co.	War- ner- Quin- lan Asphalt Co.*	Union Paving Co., Balti- more.	The Cran- ford Paving Co.
1.	Laying standard asphalt pavement, (2)-inch asphalt surface, 3-inch binder; before compression) with 6-inch concrete base:				
	(a) per square yard.	\$1.69	\$1, 49	\$1.67	\$1.72 1.66
Z.	Laying vitrified block with 6-inch concrete base	1.34	1, 23	1.33	1. 40
3.	Laying standard asphalt pavement (2j-inch asphalt surface, 2-inch binder, before compression) on 5-inch concrete base:				2. 10
	(a)per square yard	. <b></b>			1.67
4.	(b)	1.64	1.43	1.59	1.62
	will allow the District for Occoquan stone furnished at District	1, 29	1.15	1. 25	1.35
•	Wharf, Tenth and Water Streets	. 75	.90	. 84	.70

Bid (a) is for the work using a natural pitch-lake asphalt conforming to the specifications. Bid. (b) is for the work using any asphalt that will conform to the specifications. NOTE.—Bid B accepted.

### Laying granite-block roadway on approaches to Highway Bridge.

(Opened June 22, 1915.)

[Opan	ou a creso r	a, 1-100j						
•	Bidders.							
Items.		George I oud Con- tract- ing. Co.	E. G. Gum- mel.	R. J. Beall Con- struc- tion Co.*	Cran- ford Paving Co.	Frank Marine.	Wm. Meyer.	
Laying granite block parement on 6-inch concrete base, including construction of base	\$2, 14 1, 27	\$1, 65 1, 15 . 47	\$1.85 1.10 .70	\$1, 48 . 48 . 39	\$1.69 1.07	\$1.80 1.05 .27	\$1.47 .70 .50	

#### Grading and improving streets, roads, and avenues:

(Opened June 22, 1915.)

			Bide	iers.		
Items.	G. B. Mul- lin Co.*	E. G. Gum- mel.*	Cran- ford Paving Co.	Harper & Voigt.	War- ren F. Bre- nizer Co.	Wesh- ington Asphalt Block & Tile Co.
Gradingpar cubic yard	\$0.39	\$0.35	1 <b>\$0.</b> 55	{ <sup>2</sup> \$0. 41 ₹. 53	\$0.53	1 \$0. 45
Setting 6 by 20 inch granits or bluestone curb	. 32 . 35	. 33 . 34	.33	.85 .35	.35	32
asphalt block gutter	. 47 . 78	. 45 . 84		. 42 . 80		
base	1. 20	1, 25		1, 45		ļ
chudedper linear foot	. 50	.70	l <b></b> .	.60		
Constructing 18-inch cement gutterdo	.40	.60		. 35	1	
Constructing 24-inch cement gutterdo	. 50	.40		. 45		
Constructing cement concrete roadwayper square yard	.80	. 83	. 76	.792	.91	. 85
Fusaishing and hanling bank gravel, per cubic yard	.59	1, 25		.82		

#### 2. SEWER CONSTRUCTION.

# Constructing service sewer in Bladensburg Road NE.

[Opened Aug. 3, 1914.]

	Bidders.								
Items.	Geo. Hyman.	Wm. F. Cush.*	James W. Bean Contract- ing Co.	Charles H.Tomp- kins.	Warren F. Bren- izer Co.	R. J. Beall.	E. G. Gummel.		
Ordinary excavation per cu.yd. Sewer brick masonrydo For 10-inch diameter pipe sewer, per lin. ft	\$1.20 14.00	\$0.43 18.00	\$0.50 13.50 .45	\$0.60 13.00 .50	\$0.60 13:00 .82	\$0.44 13.00 .60	\$0.75 16.00 .60		

Constructing service sewers in Murdock Mill Road, Forty-ninth Street, Butterworth Place, Brandywine Street, and Asbury Place.

[Onened Aug. 3, 1914.]

	Bidders.										
Items.	W. F. Cush.	R. B. Wenner.	W. F. Brenizer Co.	Geo. Hyman.*	Jas. W. Bean Contract- ing Co.	R. J. Beall Construct- ing Co.	Charles H. Tomp- kins.	E. G. Gummel.			
Ordinary excavation, per cu. yd	<b>\$</b> 0.65	\$0.80	<b>\$0</b> . 50	\$0.45	\$0.48	. \$0.68	\$0.60	\$0.75			
Sewer brick masonry, per cu. yd	15.00	15.00	13.00	14.00	14.00	13.00	13.00	16.00			
12-inch diameter pipe sewerper lin. ft	. 65	.56	. 59	.60	.48	65	. 60	.70			
10-inch diameter pipe sewerper lin. ft	. 60	. 481	. 52	.50	.43	.60	. 55	.60			

Construction of service sewers in Broad Branch Road and Stephenson Place.

[Opened Aug. 3, 1914.]

	Bidders.										
Items.	R. B. Wenner.	Wm. F. Cush.	E. G. Gummel.	W. F. Brenizer.	Geo. Hyman.	James W. Bean Contract- ing Co.*	R. J. Beall Construc- tion Co.	Charles H. Tomp- kins.			
Ordinary excavation, per cu. yd	<b>\$</b> 0.85	\$0.49	<b>\$0</b> . 75	<b>\$</b> 0.50	<b>\$</b> 0.45	<b>\$0.45</b>	<b>\$</b> 0.59	\$0.60			
Sewer brick masonry, per cu. yd	15.00	14.00	16.00	13.00	14.00	14.00	13.50	13.00			
12-inch diameter pipe sewerper lin. it	.56	.60	.75	.59	.60	.48	. 64	.60			
10-inch diameter pipe sewerper lin. it	.481	. 55	.65	. 52	.50	.43	.60	.56			

Construction of section 3, Maryland Avenue trunk sewer, Seventh Street to Fourth
Street NE.

[Opened Aug. 3, 1914.]

	Bidders.							
Items.	W. F. Cush.*	Whiting- Turner Construc- tion Co.	Geo. Hyman.	E. G. Gummel.	R. J. Beall.	W. F. Breniser Co.		
Ordinary excavationper cu. yd Concrete masonrydo Vitri ed brick masonrydo Sewer brick masonrydo		\$0.90 7.40 23.00 14.00	\$0.60 6.75 19.00 14.00	\$1.00 7.00 22.00 15.00	\$1.15 7.40 21.00 12.50	\$0.66 6.75 21.00 12.00		

# Construction of section 6, Rock Creek main interceptor, in Rock Creek Park.

#### [Opened Aug. 3, 1914.]

	Bidders.				
Items.	Geo. Hyman.	Whiting- Turner Construc- tion Co.	W. F. Breniser Co.*	E. G. Gummel.	
SECTION A—Sewer in open cut.  Ordinary excavation	\$1.80 7.65 19.60 14.00	\$1.57 8.15 23.50 15.00	\$0.70 8.00 21.00 13.00	\$0.90 7.00 23.00 16.00	
SECTION B—Sewer in tunnel.					
All excavation per lin. ft. of tunnel All masonry per lin. ft. of sewer		18. 25 7. 70	19.00 8.50	15.00 11.00	

# Constructing outlet sewer in Decatur Street and Iowa Avenue.

#### [Opened Sept. 8, 1914.]

	Bidders.									
Items.	M. O'Herron & Son.	James W. Bean Contract- ing Co. (Inc.).	Warren F. Bren- izer Co.	Whiting- Turner Construc- tion Co.	Wm. F. Cush.	R. J. Beall Construc- tion Co.	Geo. Hyman.*			
1. Ordinary excavation,										
per cu. yd	\$1.90	\$0.48	\$0.55	\$0.97	<b>\$0.85</b>	\$0.70	<b>\$0.45</b>			
per cu. yd	15.00	14.00	13.00	15.00	14.00	15.00	14.00			
8. 24-inch diameter pipe sewer, per lin. ft	1.20	.94	.98	. 1.24	.80	1.15	.95			
4. 21-inch diameter pipe sewer, per lin. ft	1. 15	. 83	. 88	1.02	.75	.90	.85			

# Constructing service sewers in Klingle Street and Forty-sixth Street NW.

# [Opened Sept. 8, 1914.]

· Bidders.							
Items.	M. O'Her- ron & Sons.	W. F. Brenizer Co.	Jas. W. Bean Contract- ing Co.*	Whiting- Turner Construc- tion Co.	Wm. F. Cush.	R. J. Beall.	Geo. Hyman.
1. Ordinary excavation, per cubic yard	\$1.30 15.90	\$0.45 13.00 .58	\$0.48 14.00 .51	\$0.86 15.00	\$0.64 14.00 .63	\$0.59 14.00 .62	\$0.45 14.00 .55

Constructing service sewers in Sigsbee Place, Tenth Place, alley square 3814 right of way, and Bates Road.

#### [Opened Sept. 8, 1914.]

	Bidders.						
Itams.	M. O'Her- ron & Sons.	Warren F. Brenizer Co:	Whiting- Turner Construc- tion Co.	Wm. F.	R. J. Beali Construc- tion Co.	Geo. Hyman.*	
1. Ordinary excavation percubic yard. 2. Sawer brick masonry	\$3.00 15.90 .71	\$1.25 14.00	\$0.86 15.00	\$1.30 15.00	\$0,84- 14:00 .79:	\$0.50. 12.00	

#### Constructing sewer in Eighteenth Street and New York Avenue NW.

### [Opened Sept. 8, 1914.]

	Bidders.								
Itams.	Mr. O'Her- ron. & Sons.	Warren F. Brenizer.	Jas. W. Bean Contract- ing Co.*	Whiting- Turner Construc- tion Co.	Wm. F. Cush.	R. J. Beall Construc- tion Co.	Geo. Hyman.		
1. Ordinary excavation, per cubic yard	\$2.50	\$0.85	\$0.68	<b>\$1</b> : 29	\$0.90	<b>\$0.98</b>	\$0.90		
Sewer brick measonry, per cubic yard	16.00 .71	13.00 .80	14:09 .66	15.00	13.50 .70	14.00	14.00 .85		

#### Constructing substructure, Poplar Point substation.

Work complete:	*[Opened Sept. 17, 1914.];
Hammett'Fire Proofing Co	
Fred Drew Co. (Inc.)	2,831
Note.—All bids rejected.	

Constructing reinforced concrete columns and girders for superstructure, Poplar Point substation:

Work complete: [Opened Sept. 29, 1914.]			
Baltimore Stone Co National Fire Proofing Co. R. J. Beall Construction Co.*	\$1.	930.0	0
National Fire Proofing Co	2,	149.0	Ō
R. J. Beall Construction Co.*	1.	767.8	۵

Constructing special deep service sewer in Fourteenth Street and alley, square 263.

#### [Opened Sept. 29, 1914.]

	Bid	Bers.
Items.	Warren F: Bren- izer Co.	R. J. Beall Construc- tion Co.
Ordinary excavation	\$1.75 15.00 .75	\$1. 58 14. 70 . 85

Note.—All bids rejected.

# Construction of trunk senser in T Street and Wisconsin Avenue, Thirty-seventh Street to W Place.

#### [Opened Sept. 28, 1914.]-

	. Bidders.						
Réma;	Wm. F. Cush.	James W. Bean Con- tracting Co.*	W. F. Brenizer Co.	M. O'Her- ron & Son.	Whiting- Turner Construc- tion Co.	Geo. Hyman,	
Ordinary excavationper cubic yard. Comercte masonrydo. Vitrified-brick masonrydo. Sewes-brick masonrydo.	\$0.56 6.65 21.00 13.00	\$0.50 5.98 20.00 13.00	\$0.60 5.70 20.00 12.00	\$1, 15 7, 50 20, 00 15, 00	\$1, 22 7, 49 22, 50 13, 00	\$0.50 6.50 19.00 14.00	

#### Constructing outlet sewer in Varnum Street, between Seventh and Ninth Streets.

#### [Opened Sept. 28, 1914.]

Items.		. Bidders.					
		W. F. Brenizer Co.*	M., O'Her- ron & Son.	Whiting- Turner Construc- tion Co.	Geo.		
Ordinary excavation per cubic yard. Concrete masonry excavation do. Vitrified-brick masonry do. Sewer-brick masonry do.	\$1.10 7.25 21.00 .14.00	\$0, 60 6, 50 20, 09 12, 00	\$1. 25 8. 00 20. 00 15, 00	\$1.00 10.60 22.50 14.00	\$0, 80 8, 00 20, 00 14, 00		

# Construction of outlet sewer in Upshur Street and Sixteenth Street, between Arkansas Avenue and Webster Street.

#### [Opened Sept. 28, 1914.]

•	Bidders.						
Ičems.	Wm. F. Cush.	M. O'Her- ron & Som.	W. F. Brenizer.	James W. Bean Con- tracting Co.		Geo.	
Ordinary excavationper cubic yard Concrete masonrydo Vitrified-brick masonrydo Sewer-brick masonrydo	\$0. 44 7. 00 21. 00 13. 50	\$1, 20 8, 00 20, 00 15, 00	\$6. 55 6. 75 20. 00 12, 00	\$0.65 6.50 21.00 14.00	\$1. 18 8. 30 22, 50 14. 00	\$0. 45 6. 75 19. 00 14. 00	

# Constructing outlet sewer in Fourteenth Street, Arkansas Avenue to Crittenden Street. [Opened Sept. 28, 1914.]

	Bidders,							
Items.	Wm. F. Cush.	James W. Bean Con- tracting Co.	W. F. Brenizer.	Whiting- Turner Construc- tion Co.	M. O'Her- ron & Som,	Geo. Hyman.*		
Ordinary excavationper cubic yard Concrete masonry excavationdo Vitrified-brick masonrydo Sewer-brick masonrydo	\$0, 46 7, 00 20, 50 13, 50	\$0.60 6.50 21.00 14.00	\$0.55 6.75 20.00 12,00	\$1. 49 6. 50 21. 50 13, 00	\$1, 20 8, 00 20, 00 15, 00	\$8, 50 6, 75 19, 00 14, 00		

#### Constructing section 2, Pinehurst outlet sewer.

[Opened Oct. 30, 1914.]

	Bidders.					
· Items,	James W. Bean Con- tracting Co.*	Geo. Hyman.	W. F. Brenizer Co.	Wm. F. Cush.	R. J. Beall Construc- tion Co.	
Ordinary excavation per cubic yard.  Sewer-brick masonry do  15-inch diameter pipe sewer per linear foot.  12-inch diameter pipe sewer do	14.00	\$0.50 14.00 .65 .55	\$0.55 14.00 .60 .55	\$0, 54 14, 50 , 84 , 56	\$0.69 16.60 .88 .78	

# Constructing cross connection, Rock Creek Valley sewer, in National Zoological Park. [Opened Oct. 30, 1914.]

	Bidders.					
Ttems.	Whiting- Turner Construc- tion Co.	Geo.	Jas. W. Bean Contract- ing Co.	Warren F. Brenizer Co.	W. F. Cush.*	
Ordinary excavation per cubic yard.  Concrete masonry B do  Vitrified brick masonry do  Sewer brick masonry do	8.20	\$0.75 9.50 20.00 14.00	\$0.85 7.40 22.00 15.00	\$0.75 7.00 20.00 12.00	\$0.58 7.00 19.50 14.50	

# Reconstruction of the A Street trunk sewer, First and A Streets NE.

#### [Opened Oct. 30, 1914]

		Bidders.	
Items.	Wm. F. Cush.	R. J. Beall.	Jas. W. Bean Contract- ing Co.*
Ordinary excavation per cubic yard.  Concrete masonry D do.  Vitrified brick masonry do.  Sewer brick masonry do.	\$2.75 9.00 24.00 14.00	\$1.90 10.00 25.00 14.00	\$1.25 9.00 25.00 15.00

### Constructing Hillbrook service sewers, section 1.

#### [Opened Feb. 8, 1915.]

		Bidders.				
Items.	Bruno Pizzi- menti.	Warren F. Brenizer Co.	Geo. Hyman.	Wm. F. Cush.		
Ordinary excavation	20.00 1.50	\$0.90 12.00 .95 .55 .47	\$0.65 14.00 1.10 .60	\$1.55 15.00 .85 .60		

# Constructing Pinehurst service sewers.

# [Opened Feb. 8, 1915.]

	Bidders.					
Items.	Bruno Pizzi- menti.	Warren F. Brenizer.	Jas. W. Bean Contract- ing Co.	Geo. Hyman.*	Wm. F. Cush.	
Ordinary excavationper cubic yard.  Bewer brick masonrydo.  12-inch diameter pipe sewerper linear foot  10-inch diameter pipe sewerdo	\$1.08 20.00 .97 .85	\$0.44 13.00 .60 .53	\$0.65 14.00 .53 .48	\$0.40 12.00 .48 .44	\$0.56 14.00 .58 .52	

# Constructing outlet, Hawes Run trunk sewer.

# [Opened Feb. 15, 1915.]

	Bidders.				
Items.		Geo. Hyman.	Warren F. Brenizer Co.*	Martin & Miller and Bruno Pizzi-menti.	
SECTION 1—Sewer on piling and timber foundation.					
1. Excavation, etc.         per cubic yard.           2. Filing in place.         per linear foot.           3. Lumber in place.         per M feet b. m.           4. Concrete invert masonry B.         per cubic yard.           5. Concrete arch masonry B.         do.           6. Vitrified brick masonry.         do.           7. Sewer brick masonry.         do.           SECTION 2.—Sewer in ezcavation.	40.00 7.00 8.00 25.00	\$0.50 .17½ 44.00 8.25 8.25 25.00 19.00	\$1.00 .15 36.00 6.60 6.60 22.00 14.00	\$1.00 17 41.00 6.25 6.75 20.00 10.00	
1. Ordinary excavation per cubic yard. 2. Concrete invert masonry B do 3. Concrete arch masonry B do 4. Vitrified brick masonry do 5. Sewer brick masonry do	1.50 7.00 8.00 25.00 18.00	.50 8.25 8.25 25.00 19.00	.40 6.60 6.60 22.00 14.00	* . 65 6. 50 6. 90 20. 00 12. 00	

# Constructing outlet Burnt Bridge Run trunk sewer.

#### [Opened Feb. 15, 1915.]

0. 10, 1910.	, 			
Bidders.				
James Ferry & Sons (Inc.). Geo. Hy- man. Warren F. Bre- nizer Co.*			William F. Cush.	Martin & Miller and Bruno Pizzi- menti.
\$2.00 .30 40.00 7.00 8.00 25.00 18.00	\$0. 75 171 44.00 6. 50 6. 50 19.00 14.00	\$3.00 .15 \$6.00 6.50 6.50 21.00	\$1.50 .23 53.00 6.75 7.75 21.00	\$1.00 .17 43.00 6.50 7.00 21.00
	1			
7.00 8.00 25.00	. 50 6. 50 6. 50 19. 00 14. 00	.50 6.50 6.50 21.00 12.00	1. 25 6. 75 7. 75 20. 00 14. 00	1.00 6.75 7.00 21.00 12.00
	James Ferry & Sons (Inc.). \$2.00 .30 40.00 7.00 8.00 25.00 18.00 1.50 7.00 8.00 25.00	James Ferry & Sons (Inc.).  \$2.00	### Bidders.    James Ferry & Sons (Inc.).	Bidders   Bidders   Warren   F. Bre-   Sons   Man.   Warren   F. Bre-   Size   Sons   Size   Size   Size   Size

# Constructing outlet Nailors Run trunk sewer.

# [Opened Feb. 15, 1915.]

	Bidders.				
· Btems.	James Ferry & Sons (Inc.).	Geo. Hy- man.	Warren F. Bre- nizer Co.*	Wm. F. Cush.	Martin & Miller and Brune Pizzi- menti.
SECTION 1—Sewer on piling and timber foundation.					
1. Excavation, etc. per cubic yard. 2. Piling in place. por linear foet. 3. Lumber in place. per 1,000 feet b. m. 4. Concrete invert masoury B. per cubic yard. 5. Concrete arch masonry B. do. 6. Vitrified brick masonry. do. 7. Sewer brick masonry. do.	8.00	\$0.50 .17\frac{1}{44.00} 7.50 7.50 22.00 _16.00	\$3.00 .15 36.00 6.50 6.50 21.00	\$1.50 .23 55.00 8.50 9.75 26.00	\$1.00 .17 41.00 6.25 6.75 20.00 _10.00
SECRECA 2.—Sewer in excavation.		1	ŀ		
1. Ordinary excavation         per cubic yard           2. Concrete invert masonry B         do           3. Cencrete arch masonry B         do           4. Vitrified brick masonry         do           5. Sewer brick masonry         do	7.00 8.00	.50 7.50 7.50 22.00 16.00	. 40 6. 50 6. 50 21. 00 14. 00	1. 50 8. 50 9. 75 <b>26. 00</b> 16. 00	.75 6.26 6.75 20.00 12.00

# Constructing replacing sewer Eighteenth and H Streets NW.

#### [Opened Mar. 8, 1915.]

		Bidders.			
Items.	Wm. F. Cush.	Geo.;By- man.	Warren F. Bre- niser Co.*		
Ordinary exeavation. per cubic yard. Sewer brick masonry. do 24-inch diameter pipe sewer. per linear foot 18-inch diameter pipe sewer. do 15-inch diameter pipe sewer. do	\$1,45 18,60 1,05 .80 .75	.81:25 :14:00 1:30 .80 75	:30,885 14,300 ,87 209 .62		

# Constructing trunk sewer, Georgia Avenue, Fern Street to District line.

### [Opened Mar. 8, 1915.]

ltums.		Bidders.			
		Warren F. Brenizer Co.*	Geo. Hy- man.		
Ordinary excavation	₩0.65 14.00 .60	14.00 365	14.00 .44		

# Constructing Porter Street storm.sewer, west from Connecticut Avenue.

[Opened Apr. 21, 1915.]

,	Bidders.				
Itams.	Warren F. Bre- nizer Co.	Wm. F. Cush.	George Hyman.*	Whiting- Turner.	
Ordinary excavation per cubic yard.  Concrete masonry E do.  Vitrified brick masonry do.  Sewer brick masonry do.	\$0.70 6.50 21.00 12.00	\$0.69 7.00 22.00 14.00	\$0.30 8.75 20.00 13.00	\$0.94 8.00 22.00 ;15.00	

Construction of sections 7, 9, and 11, Arizona Avenue trunk sewer, New Mexico Avenue to Newark Street NW.

#### [Opened May 12, 1915.]

(opens up) and another							
	Bidders.						
Items.	Warren F. Brenizer Co.*	Wen. F. Cush.					
Cordinary excavation per subic yard. Concrete masonry do. Witrified brick do. Sewer brick masonry do.	\$0, 38 6. 30 21. 00 14. 00	\$0,64 7.89 22,84 16.00	: <b>\$0.6</b> 5 8.50 <b>19.00</b> 15.00	480, 55 7, 15 20, 00 14, 50			

Constructing section 7, Rock Creek main interceptor, in Rock Creek Park, crossing Rock Creek.

#### [Opened-May 25, 1915.]

Warren F. Dremser Co.	
Section A—	
Ordinary excavation	.per cubic vard \$3.00
Concrete masonry, B	do 10.00
Vitrified brick masonry	do 25.00
Sewer brick masonry	do 15.00
- Rection R.—	
Laying 54-inch diameter cast-iron pipe crossing Rock Creek	per linear foot 27 50
Concrete masonry, B, around pipe.	ner mbio verd 10.00
Constitution mastern j, D, around processing a constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the constitution of the	· per cubic year

#### Constructing outlet, College Pond trunk sewer.

# [Opened June 3, 1915.]

	Bide	lers.
Items.	Warren F. Bre- nizer Co.*	Whiting - Tur- ner Construc- tion Co.
SECTION 1.	•	
Section A neever in open cut and shaft.		
Ordinary excavation. per oubic yard Concrete masonry, B do Vitrified brick masonry laid do Sewer brick masonry aid do Sewer brick masonry do do	7 00	\$3. 00 10. 80 23. 50 _20_00
Section B, sewer in tunnel.		
Excavation of tunnel per linear foot.  All massnry of sewer	83.00 9.50	<b>29.</b> 10 10. <b>0</b> 0
Sewer in open cut.		
Ordinary execution per cubic yard. Concrete mesonry, B do Vitrified brick mesonry do Sewer brick mesonry do	6. 50 21. 00	1.00 8.47 22.50 16.00

Construction of replacing sewers in Connecticut Avenue, alley of square 156, K Street NW., Eighteenth Street NW., and in Massachusetts Avenue NW.

#### [Opened June 21, 1912.]

	Bidders.		
Items.	Warren F. Bre- nizer Co.*	George Hyman.	
SEWER A.			
Ordinary excavation	\$1.10 13.00 .65	\$1. 50 14. 00 . 90	
SEWER B.			
Ordinary excavation	1.50 14.00 .75	1. 50 14. 00 . 85	
SEWER C.			
Ordinary excavation	1.15 13.00 .60	1.50 14.00 .85	
SEWER D.			
Ordinary excavation	1.15 13.00 .60	1.80 14.00 .85	
. SEWER E.			
Ordinary excevation. per cubic yard.  Sewer brick masonry. do. 12-inch diameter pipe sewer. per linear foot.	1.50 14.00 .65	1.50 14.00 .83	

Construction of Michigan Avenue trunk sewer, in Eleventh Place, to Baltimore & Ohio Railroad.

#### [Opened June 21, 1915.]

		Bidders.		
Items.	Warren F. Brenizer Co.	Whiting- Turner Construc- tion Co.	George Hyman.*	
Ordinary excavation per cubic yard. Concrete masonry do. Virified brick masonry do. Sewer brick masonry do.	\$0.50 7.00 21.00 14.00	\$1.00 7.16 19.89 15.00	\$0. 40 6.00 20.00 12.00	

Construction of section 4, Anacostia main interceptor, Young Street to Twenty-ninth Street SE. extended.

#### [Opened June 11, 1915.]

	Bidders.		
Items.	Warren F. Brenizer Co.*	James H. Sullivan.	Whiting- Turner Construc- tion Co.
Ordinary excavation. per cubic yard. Concrete masonry B. do. Vitrified brick (masonry) do. Sewer brick (masonry). do.	\$0.70 6.50 21.00 14.00	\$2, 59 10, 50 20, 00 14, 00	\$1. 57 7. 24 21. 55 15. 00

Construction of replacing sewers in Third Street NW. (east side), between L Street and New York Avenue, and in North Capitol Street (east side), between New York Avenue and O Street; also crossing North Capitol Street in line of Hanover Place.

#### [Opened June 21, 1915.]

		lers.
Items.	Warren F. Brenizer Co.*	George Hyman.
SEWER A.		
Ordinary excavation	\$1.25 14.00 .60	\$1.50 14.00 .90
SEWER B.		
Ordinary excavation. per cubic yard. Sewer brick masonry. do. 18-inch diameter pipe sewer. per linear foot. 12-inch diameter pipe sewer. do.	1. 15 14.00 .85 .60	1. 50 14. 90 1. 00 . 90

#### Constructing service sewers in the District of Columbia.

#### [Opened June 21, 1915.]

		lers.
Items.	Warren F. Brenizer Co.	George Hyman.
SEWER A.		
Ordinary excavation. per cubic yard. Sewer brick masonry do 12-inch diameter pipe sewer. per linear foot. 10-inch diameter pipe sewer. do.	14.00 .65	\$0.60 14.00 .55 .50
SEWER B.		
Ordinary excavation. per cubic yard.  Sewer brick masonry do.  10-inch diameter pipe sewer per linear foot.	. 55 14. 00 . 55	. 60 14. 00 . 50
SEWER C.		
Ordinary excavation. per cubic yard.  Sewer brick masonry do  15-inch diameter pipe sewer. per linear (oot.  12-inch diameter pipe sewer. do.	1,00 14,00 .65 .55	. 60 14. 00 . 75 . 55
SEWER D.		
Ordinary excavation. per cubic yard Sewer brick masonry do 21-inch diameter pipe sewer per linear foot 15-inch diameter pipe sewer do 12-inch diameter pipe sewer do 10-inch diameter pipe sewer do 10-inch diameter pipe sewer do	13.00 .85 .65	.60 14.00 1.00 .75 .55
SEWER E.		
Ordinary excavation. per cubic yard.  Sewer brick masonry do.  18-inch diameter pipe sewer. per linear foot.  15-inch diameter pipe sewer. do.	. 55 13. 00 . 75 . 65	. 60 14. 00 . 90 . 75

Nors.—Award to Brenizer, B, D, and E; to Hyman, A and C. 10662°—D C 1915—vol. 2——18

#### 3. BUILDING AND BUILDING REPAIRS.

Erection of shelters, yard and weighmaster's offices, lunch room, toilets, etc., on the open space between Tenth and Twelfth, B and Little B Streets NW.

[Opened	July	22,	1914.]
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				Bidders.			
Items.	Burgess & Parsons.	Randolph L. Jen- nings.	James L. Marshall.	Davis Construc- tion Co.	Skinker & Gar- rett.	Melton Construc- tion Co. (Inc.).	Wm. E. Mooney.
Work complete	\$15,500 650	\$17,063 500	\$15, 100 519	\$16,376 540	\$15, 760 450	\$14,900 500	\$14,84 54
Material and labor and inst the east and west entrances and Fourteenth Streets SE Price, work complete: A. F. Jorss. Soper & McDonald	, at the B E. (G	ryan Sch Opened Sep	ool Build pt. 8, 1914.]	ting, on B	Street, l	between I	hirteenti 22 22
Note.—All bids rejected.	FF: 1	<b>~</b>	<b>37</b> 4 4 7 4				
Note.—All bids rejected.  Reconstruction of the Wester	_	School,	-	•			•

Excavation, foundations, and substructure for high school No. 174, in square 554, First Street NW. between N and O Streets.

#### [Opened Nov. 19, 1914.]

	Items.		
Bidders.	Price, work complete.	Alternate A, deduct	Alternate B, deduct
James L. Marshall	\$68,830	\$150	\$6,53
Geo. A. Fuller Co		100	
Irwin & Leighton			6.50
Chas, McCaul Co	65, 829		6,00
Conners Bros. Co. (Inc.)	77,750	200	4,20
Geo. E. Wyne	58,700		4,65
Skinker & Garrett	66.584	50	5,40
Melton Construction Co. (Inc.)	61,995	200	5,40
P. F. Gormley Co.*	55,557		5,55
Boyle-Robertson Construction Co	65, 200	200	6,00
Arthur L. Smith & Co			4,12
Norcross Bros. Co		300	4,55
Frank L. Wagner			4,50
Andrew Murray			6.14
F. Roe Searing	69, 945		5,300
Arthur Cowsill	68,710	230	4,25
Wells Bros. Co		100	5,00
R. J. Beall Construction Co		500	4,000
Keepsdry Construction Co		1	8,000

Note.—"Price, work complete," includes all excavations, foundations and substructure up to the level of the underside of water table. Alternate A: If north entrance on First Street be made to conform to drawing marked "Alternate A" basement plan, deduct. Alternate B: If brick are furnished by the District, as per specifications under "Brickwork," deduct.

Constructing repair shops for the water department, District of Columbia, to be located on the south side of Bryant Street, west of Second Street NW.

[Opened Dec. 16, 1914.]	
Andrew Murray	<b>\$21,700</b>
Arthur L. Smith & Co.	19, 100
Melton Construction Co. (Inc.)♥	
Westchester Engineering Co.	28, 256
W selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the selection of the sele	20, 200
Skinker & Garrett	
A. M. Poynton	21,000
James L. Marshall.	
J. L. Robinson Construction Co.	23, 200
W. E. Mooney	
Charles A. Langley	
Henry B. Davis.	
Richardson & Burgess (Inc.)	21,100
Michael A. Weller	19, 149
Upton-Smoot Construction Co.	19,487
	,

#### Driving piles under foundation for high school No. 174.

#### [Opened Feb. 10, 1915.]

		Bidders.	
Items.	Cranford	Raymond	P. F.
	Paving	Concrete	Gormley
	Co.*	Pile Co.	Co.
Price for all piles shown on plan, sheet 28, on basis of an average length of 16 feet per pile.  Price to be added per pile, or deducted for additions or deductions from number on plan.	\$7,200.00	<b>\$7,722</b> .00	\$8,200.00
	15.00	15.20	15.00

Furnishing and installing heating and ventilating system, reconstruction of the Western High School.

#### [Opened Mar. 12, 1915.]

[Opened Mar. 12, 1510.]	
Job complete: Detroit Heating Co	
Detroit Heating Co 3	17.863
Monarch Ventilates Co #	17 600
Monarch Ventilator Co.*	17,023
Biggs Heating Co.	10 106
Diffe magnif co	10, 120
W. G. Cornell Co.	14 740

#### Constructing superintendent's residence at Tuberculosis Hospital.

[Opened Apr. 9, 1915.]	
Arthur L. Smith & Co	\$7,648
Henry R Davie	7 000
R A Gaskins & Sons	7, 496
Michael A, Weller. A, M. Poynton.	7, 824
A W Poynton	8, 250
Skinker & Garrett.	7, 777
Andrew Murray	8,675
Chas. J. Cassidy & Co	8,883
William E. Mooney*	7, 199

Construction of Park View School, No. 173, in square 3033, Warder Street NW. between Newton and Otis Streets.

#### [Opened Apr. 10, 1915.]

	Items.									
Bidders.	Price, work complete.	Alter- nate A.	Alter- nate B.	Alter- nate C.	Alter- nate D.	Alter- nate E.				
William E. Mooney Andrew Murray. Irwin & Leighton. Richardson & Burgess (Inc.). King Lumber Co. George A. Fuller Co. Wells Bros. Co. Frank L. Wagner. Conners Bros. Co. (Inc.) J. H. Pierce. Arthur Cowsill. P. F. Gormley Co. Melton Construction Co. (Inc.)	142, 700 128, 400 135, 569 127, 000 126, 500 120, 000 144, 860 148, 390 124, 222 138, 484 127, 000	+\$1,641 + 1,800 + 2,000 + 1,641 + 1,650 + 1,700 - 1,730 + 1,850 + 1,500 + 1,641	- \$700 - 155 - 850 + 315 - 300 -1,200 -1,300 -1,300 - 15 -1,360	- \$855 -1,000 - 350 - 480 - 900 - 900 -1,025 - 400 -1,200 -1,200 -215 - 827	-\$120 - 150 - 60 - 55 - 165 - 185 - 50 - 300 - 475 - 68 - 160	-\$110 - 138 - 75 - 55 - 150 - 100 - 100 - 50 - 187 - 270 - 75 - 150				

#### Construction of Park View School, No. 173, in square 3033, Warder Street NW. between Newton and Otis Streets-Continued.

	Items.								
Bidders.	Alter- nate F.	Alter- nate G.	Alter- nate H.	Alter- nate I.	Alter- nate K.	Alter- nate L.	Alter- nate M.		
William E. Mooney Andrew Murray Irwin & Leighton Richardson & Burgess (Inc.) King Lumber Co. George A. Fuller Co. Frank L. Wagner Conners Bros. Co. (Inc.) J. H. Pierce Arthur Cowsill P. F. Gormley Co. Melton Construction Co. (Inc.).	- \$57 + 250 +1,100 - 221 - 175 - 100 + 50 + 25 - 400 +1,400 + 235 - 89	+\$259 + 250 + 150 + 300 + 250 + 149 + 500 + 300 + 100 + 259 + 286	-\$32 - 39 - 25 - 30 - 55 - 50 - 100 - 75 - 23	-\$100 + 99 - 50 - 250 - 100 - 50 - 300 - 50 + 47 + 50	-\$20 + 25 - 30 + 5 - 50 - 100 - 50 - 23	+\$1,690 + 1,800 + 1,250 + 1,500 + 1,500 + 1,000 + 1,490 + 1,600 + 1,625 + 2,100 + 1,575	-\$3,600 - 3,000 - 1,300 - 1,300 - 800 - 3,500 - 2,600 - 3,400 - 1,900 - 2,738 - 2,500		

Deduct \$3 per thousand.

-Bids rejected and two lowest bidders allowed to submit new bids making deductions, as shown in the following statement:

#### Constructing the Park View School No. 175, in square 3033, Warder Street NW. between Newton and Otis Streets.

#### SECOND LETTING.

#### [Opened May 10, 1915.]

	Bid	ders.		Bid	ders.
Item.	Wells Bros. Co.	Melton Construc- tion Co.*	Item.	Wells Bros. Co.	Melton Construction Co.*
Price, building complete	\$120,000	\$121,000	Deduct for alternate—		
Deduct for alternate—			No. 15	\$275	\$20
No. 1	700	200	No. 16	1,800	1,26
No. 2		285	No. 17		5
No. 3		200	No. 18		14
No. 4	900	1,180	No. 19		60
No. 5 No. 6		657	No. 20 No. 21.		
No. 7	1,750 1,267	1,600 1,859	No. 22		1,10 79
No. 8		1,009	No. 23		(1)
No. 9	850	600	No. 24		(')
No. 10	4,750	11,540	No. 25	40	6
No. 11	25	56	No. 26		1,36
No. 12		174	No. 27	150	15
No. 13		197	No. 28		40
No. 14	1,400	1,524	No.29	2,000	3,330

1 Deduct 2 cents per square foot.

#### EXPLANATION OF ALTERNATES FOR SECOND LETTING OF THE PARK VIEW SCHOOL.

Alternate No. 1: If outside concrete steps are omitted, will deduct.
Alternate No. 2: If iron guards to windows and doors are omitted, will deduct.
Alternate No. 3: If folding doors in corridors are omitted, will deduct.
Alternate No. 4: If tile floors in corridors and tollet rooms are omitted, and cement topping blocked of

Alternate No. 2: If the floors in corridors and tollet rooms are smitted, and cement topping blocked off into 24-inch squares is substituted, deduct.

Alternate No. 5: If the 4-inch hollow tiles, the vertical slating and the "antihydrine" cost on all outside walls are omitted, and pargeting only retained, deduct.

Alternate No. 6. If all stone above the level of the water table course, except window mullions, transom bars, and lintels, is omitted, and the following-named substitutions are made, viz. terra cotta, to match the limestone wherever else stone is indicated, terra cotta for stone in the front entrance, above the base course, in the side entrance above the door sill, and in the stage entrance above the granite course marked (terra cotta is understood for all retained stone wor. In alternate 16), deduct.

Alternate No. 7: If retaining wall on Newton Street and on the west side of lot is omitted, deduct.

Alternate No. 8: If stone concrete throughout the building is omitted, and gravel concrete, the gravel to be graded in size and to pass a 3-inch ring for slab work, is substituted, deduct.

Alternate No. 9: If the chestnut trim specified is omitted, and No. 1 Virginia pine, painted or oiled as shall be directed, is substituted, deduct.

Alternate No. 10: If the face brick specified and the manner of laying same are omitted, and Occoquant brick with a raked-out joint \$\frac{1}{2}\$ inch deep are substituted, deduct.

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Alternate No. 11: If shelves back of teachers' desks are omitted, deduct.

Alternate No. 12: If the waterproofing compound specified in the mortar, except over the coal vault and boiler room and in the parapet walls above roof line is omitted, deduct.

Alternate No. 13: If the brick paving specified is omitted, and Occoquan brick isid flat, herringbone pattern, is substituted, deduct.

Alternate No. 14: If one bay of the assembly hall is omitted, deduct.

Alternate No. 15: If the wood truss coverings and dormers are omitted, and the ceiling lowered to the Alternate No. 15: If the wood truss coverings and dormers are omitted, and the ceiling lowered to the tie beam line, supplying such ceiling joists as may be necessary and paneling the ceiling with bristol board \$ by 4 inch formings, about as shown on present drawings, deduct.

Alternate No. 16: If all stone mullions, transom bars, all stone panel work under windows and centra section of buildings are omitted, and Occoquan bric', beveled jamb wood frames and In-inch channels with 4 by 4 by \$ angles riveted to same over all mullion windows, are substituted, deduct.

Alternate No. 17: If all leaded glass is omitted, and "AA" double thick substituted, deduct.

Alternate No. 19: If stone belusters are omitted, and a 9-inch Occoquan brick wall substituted, deduct.

Alternate No. 19: If Keen's cement plaster on ceilings is omitted, and lime and sand mortar, three-coat work is substituted deduct.

Alternate No. 19. If Keen's cement plaster on ceilings is omitted, and time and sand mortar, three-coatwork, is substituted, deduct.

Alternate No. 20. If the 21-inch watertable course is omitted, and a course of equal depth, but in two sections, the lower one 11 inches and the upper one 10 inches deep, is substituted, deduct.

Alternate No. 21: If the weather stripping is omitted, deduct.

Alternate No. 22: If the price of cement is reduced from \$1.50 to \$1.25 per barrel, deduct.

Alternate No. 23: Will allow for use of the discarded galvanized iron on the site of the Western Iligh School for vertical duct work in the school.

Alternate No. 24: For substitution of galvanized iron downspouts for copper, deduct.

Alternate No. 25: If stone quoins of boiler room windows are omitted and brick having stone lintels and sills substituted, deduct.

sills substituted, deduct.

Alternate No. 26: If all the stairways shown on the drawings, except the flight from basement to boiler room, be omitted, and the steel stairways with asphalt treads, as manufactured by Mesker Bros., St. Louis,

room, be omitted, and the steel stairways with asphalt treads, as manufactured by Mesker Bros., St. Louis, Mo., be substituted, will deduct.

Alternate No. 27: If the parapet wall of the assembly hall roof be omitted and a projecting roof as shown on sheet No. 16 be substituted, will deduct.

Alternate No. 28: If the entrance to girls' tollet room in the passage near the rear entrance, including the cross wall in the foul air chamber, the doors into the latter opening from said entrance and the double-swing doors at the ends of the water-closets tells in said entrance, be omitted, the entrance openings through the brick walls to be bricked up with brick as specified for the adjoining wells, will deduct.

NOTE.—If this alternate be adopted, the five water-closets west of the entrance to be moved to adjoin the water-closets on the east side of the entrance.

Alternate No. 29: If the basement height is reduced 1 foot (bringing up the footings and trench levels accordingly and saving grading), and the attic story is cut down 2 feet (bringing down roof and parapet walls), and the first-story ceiling height is reduced 1 foot and second-story ceiling height 6 inches (window frames, mullions, etc., reduced 1 foot in height), deduct.

Carpenter work, mill work, electric work, and miscellaneous work at the Western High School

For all work except electric work: Charles A. Langley* Melton Construction Co. Richardson & Burgess (Inc.).	29,798
Melton Construction Co	29,798
Richardson & Burgess (Inc.)	29,798
_ Richardson & Burgess (Inc.)	20,304
	32,390
For electric work:	•
Melton Construction Co.	
Howard P. Foley Co	
Jos. D. Campbell	3.200
Capital Electric Co.*	2.940
W. G. Cornell Co.	2.930
Carroll Electric Co.	3,094
J. E. Taylor & Co. (Inc.)	3.790
Edward C. Gramm	2,978
Reading Electric Co	

Plumbing, plastering, painting, and miscellaneous work at the Western High School.

Plumbing:   W. G. Cornell Co.*   \$11,320     Foley & Curtin
Foley & Curtin
Destroit Plumbing Co.
Plastering:       11,500         John J. Early       8,900         Murray Bros.*       8,900         McNulty Bros. (Inc.)       17,000         Richard Francis and Collins Barber       10,940         Painting and glazing:       Hooper & Klesner—         Price, job complete       8,361         Alternate A: If the wall treatment is required, add       2,400
John J. Early
Murray Bros.*
McNufty Bros. (Inc.)
Painting and glazing: Hooper & Kleener— Price, job complete
Hooper & Klesner—
Price, job complete
Alternate A: If the wall treatment is required, add 2,400
To Y be be to come
Price, job complete
Price, job complete
W. A. Thomas—
Price, job complete
Robert E. Mackay Co.—
Price, job complete 6,300
Alternate A: If the wall treatment is required, add

Brick stack at High School Building No. 174, in square 554, First Street NW., between N and O Streets.

#### [Opened June 30, 1915.]

Price for constructing chimney, complete: Heine Chimney Co.*	21.798
Alphons Custodis Chimney Construction Co	1.830
H. R. Heinicke (Inc.).	2,075

#### Plumbing work at High School Building 174.

#### [Opened June 30, 1915.]

	Bidders.									
Item.	W. G. Cornell Co.	Isadore Freund.	Detroit Plumbing Co.	Riggs Distle & Stringe.	Standard Engineer- ing Co.*	Hanley- Casey Me- chanical Equip- ment Ce.				
Price, work complete	1 \$13, 493	2 \$15, 214	\$12,800	2 \$14, 500	\$12,100	* \$16, 440				
Add: Alternate A Using Crane Co. fixtures	1,025	1,000 15,239	800	600	1,060	1,200				
Using Douglass Co. fixtures Using Hains, Jones & Cad-		15, 339								
bury Co. fixtures Using J. L. Mott Co. fix-		15,664			······································					
tures Using Wolff Co. fixtures	••••••	15, 714		+300 +600						

<sup>1</sup> Crane fixtures.

All work except heating, plumbing, and electrical work, High School Building No. 174, in square 554, First Street NW. between N and O Streets.

#### [Opened June 30, 1915.]

Items.	Nor- cross Bros. Co.	P. F. Gorm- ley Co.*	Arthur Cow- sill.	George A. Fuller Co.	King Lum- ber Co.	Geo. E. Wyne.	Melton Con- struc- tion Co. (Inc.).	Wíl- liam Dall.	Wells Bros. Co.
Price, work complete Deduct: Alternate A Add: Alternate B	<b>8343, 5</b> 00 50 300		40			65	79		100
Alternate C	1,500 150 876	520	150	8,400 850 . <b>35</b> 0	100	400	700	200	600
Alternate F	500 700 3,300	1,205 3,689	1,600 2,400	1,000 3,500	1,000 1,500	900 1,500	490 1,655	900 1,900	1,000 1,700
Alternate I	200 4,000 1,000	5,538	4,700 800	3,000 650	4,500 750	4,500 500	4,875	7,250	5,000 1,100

<sup>&</sup>lt;sup>2</sup>Sands fixtures.

<sup>&</sup>lt;sup>8</sup> Mott fixtures.

# All heating and ventilating, High School Building No. 174, in square 554, First Street NW, between N and O Streets.

[Opened June 30, 1915.]

ŢItems.	Biggs Heating Co.	W. G. Cornell Co.	Enter- prise Steam & Hot Water Heating Co.	Riggs, Distler & Co.*	Mathis Bros. (Inc.).	Standard Pngi- neering Co.	Hanley- Casey Mechani- cal Equip- ment Co.
No. 1. Work complete	\$63, 133 2, 690 1, 817 550 2, 473 1, 890 900 481 4, 752 2, 634	\$64, 984 2, 510 1, 711 677 2, 893 1, 365 1, 060 440 5, 492 2, 000	\$66,700 3,700 1,800 690 2,926 2,036 1,390 507 4,245	\$61,317 3,745 1,526 500 2,497 715 1,300 419 3,591	\$66,700 2,830 1,780 645 4,100 980 1,840 475 5,130	\$65, 200 4, 250 880 550 2, 718 2, 300 900 460 3, 100	\$61,780 3,671 1,460 400 2,860 800 800 400 4,000
No. 6. Black iron for ducts, deduct	4,100	2,000				3,730	

Electrical work at High School Building No. 174, in square 554, First Street NW. between N and O Streets.

[Opened June 30, 1915.]

Items.	W. G. Cornell Co.	Carroll Electric Co.	Standard Engi- neering Co.*	Hanley- Casey Mechani- cal Equip- ment Co.	H. P. Foley Co.	Capital Electric Co.	E. C. Graunn.
Price, work complete Deducr: Alternate A	\$8,360.00	\$7,790	\$7,350	\$9,400	\$8,187	\$7,890	\$9,445
	296.50	175	265	175	390	275	745

#### 4. MISCELLANEOUS.

# Installing new heating system for the Webster School Building, Tenth and H Streets NW. [Opened July 9, 1914.]

. Items.	Bidders.		
	Daniel D. Condon.	Biggs Heating Co.*	Detroit Heating Co.
Price, job complete.  Amount allowed by contractor for old material.	\$7,529 200	\$6,440 200	\$6,950 250

#### Retubing boilers in the Seaton School Building.

	[Opened July 17, 1914.]	
Price, job complete:		
H. F. Boswell *		\$161.00
Webber & Thomas		184.50
I. E. Hurley		179.00
G. W. Forsberg		164.00

#### Retubing boilers in the Sumner School Building.

[Opened July 17, 1914.]	
Price, job complete: H. F. Boswell.	\$235.40
Webber & Thomas	225. 21
J. E. Hurley	293.00
G. W. Forsberg*	221.32

# Retubing boilers at the Henry School.

[Opened July 17, 1914.]   Price, job complete:
Webber & Thomas. 12.39 J. E. Hurley 12.46 G. W. Forsberg* 51.50
Retubing boilers at the Emery School Building.
Price, job complete:   [Opened July 17, 1914.]
Repairs to boiler at the Public Library, Ninth Street and New York Avenue NW.
Price, job complete:   Webber & Thomas*
Hauling portable school from the Weightman School to the Powell School.
[Opened July 31, 1914.]  Merchants Transfer & Storage Co
Hauling portable school from Congress Heights School to Petworth, D. C.
[Opened July 31, 1914.]  Merchants Transfer & Storage Co.*
Furnishing and installing one horizontal-raffle, water tube boiler in the boiler plant of the Public Library of the District of Columbia, Ninth Street and New York Avenue NW.
[Opened Aug. 6, 1914.]
Daniel D. Condon       \$2,007.8         Heine Safety Boiler Co.*       2,006.6         Babcock & Wilcox Co.       2,215.0         E. Keeler Co.       2,255.0         Detroit Heating Co.       2,658.00
Retubing boilers at the Brightwood School Building.
[Opened Aug. 6, 1914.]   Price, job complete:   Webber & Thomas.   111.00     J. E. Hurley.   111.00     H. F. Boswell.   100.17     G. W. Forsberg*   101.00
Additions to the heating system of the Franklin School Building, Thirteenth Street between I and K Streets NW.
[Opened Aug. 14, 1914.]  Biggs Heating Co
Furnishing and placing slate steps at the Bradley School.
Price, job complete:
Retubing boiler and reinforcing manhole at the Syphax School.
Opened Aug. 20, 1914.]   Price, job complete:   G. W. Forsberg

Extending sewer and water to playgrounds located at First and N Streets NW.

[Opened Aug. 25, 1914.]	•		
Coberth, Hanes & White Co. Lauxman & Sincell. Maurice J. Colbert *.		• • • • • • • • • • • •	\$67 70 56
Installing breeching and piping for new 100 horsepower Library of the District of Colum		riler, etc., _	for Public
[Opened Sept. 1, 1914.]			
Biggs Heating Co.*	••••••		\$495
Installing piping systems between new boiler plant and on ton Asylum and Jail.	ut <b>s</b> ide build	lings at the	Washing-
[Opened Aug. 28, 1914.]			
Biggs Heating Co.*		• • • • • • • • • • • • • • • • • • • •	\$5,664 5,988
Repairing 12 tubes in boiler at the Small	pox Hospi	tal.	
[Opened Sept. 3, 1914.]			
J. E. Hurley G. W. Forsberg H. F. Boswell		••••••••••••	\$45.00 49.00 27.80
Repairs to water piping at the District of Columbia bathing [Opened Sept. 3, 1914.]	g beach, Se	venteenth i	Street NW
Coberth, Hanes & White Co.*		• • • • • • • • • • • • • • • • • • • •	\$89
Moving portable school from the Garnet School to the Arms [Opened Sept. 3, 1914.]  Merchants Transfer & Storage Co.  Littlefield-Alvord Co.*	•••••••	•••••••	\$43
Installing electric lighting system at the [Opened Oct. 15, 1914.]	police cous	rt.	
Bidders.	Price, job complete.	Alternate A.	Alternate B.
Carroll Electric Co.  F. de B. Weston.  Thos. J. Williams *	\$74.50 205.25 140.00	\$115.00 241.50 10.00	\$112.00 234.17 10.00
Electric-light wiring system at No. 2 1	olice statio	n.	
[Opened Oct. 21, 1914.]			
E. C. Gramm. Thos. J. Williams. Carroll Electric Co.			588.00
Norg.—All bids rejected.			
Extension of lighting system at No. 3 p	olice statio	n.	
[Opened Oct. 21, 1914.]			
E. C. Gramm Thos. J. Williams Carroll Electric Co.*			\$95.00 111.00 89.50

# Furnishing site for the new Eastern High School.

[Opened Oct. 28, 1914.]
L. S. Lipscomb & Co.:  Proposition No. 1—All of squares 1996, 1110, and the east half of square 1985, fronting on  East Capitol Street and A Street SE., running east to Nineteenth Street, containing  341,970 square feet, including parking
Proposition No. 2—All of squares 1085 and 1096, fronting on East Capitol Street and A Street SE., Sixteenth and Eighteenth Streets, containing 263,842 square feet, including
parking. 149,599.73 Proposition No. 3—All of squares 10%, 10%, and 1110, fronting on East Capitol Street, A Street SE., from Sixteenth to Nineteenth Streets, containing 406,195 square feet, including parking. 173,117.08
Insent I Weller
Square 1094, bounded by A, B, Seventeenth, and Eighteenth Streets NE.; square 1096, bounded by East Capitol, A, Seventeenth, and Eighteenth Streets NE.; square 1109, bounded by East Capitol, A, Eighteenth, and Nineteenth Streets NE
If additional ground is desired, offers aquare 1004, bounded by East Capitol, A. Sixteenth,
and Seventeenth Streets
All of square 1087, containing in all, including parking space and alleys, 149,959 square feet; all of square 1098, containing 341,406, including parking space and alleys, except 2 lots containing 23,766 square feet owned by District of Columbia; total square feet offered,
491,365. 119,039.60 R. O. Holtzman:
Square 1030, bounded by Thirteenth and Fourteenth, D, and E Streets NE., containing 237,230 square feet, exclusive of alleys and parking 167,215.00
Installing toilet in the Public Library, Eighth and K Streets NW.
[Opened Oct. 28, 1914.]
James Nolan & Sons.
James Nolan & Sons         \$168.00           Maurice J. Colbert         162.00           Coberth, Hanes & White Co.*         129.00           Hanley-Casey Co.         180.00
Installing complete electric-lighting system at No. 11 engine house.
[Opened Oct. 30, 1914.]
E. C. Gramm. \$385.00 Thos. J. Williams. \$350.00 Carroll Electric Co.* \$39.00
Removing equipment from the Western $High\ School\ to\ the\ District\ of\ Columbia\ repair\ shop.$
[Opened Nov. 2, 1914.]
Merchants Transfer & Storage Co. \$33.50 Littlefield, Alvord & Co.* 27.50
Repairs to glass urinals at public-convenience station, Thirteen-and-a-half Street and Pennsylvania Avenue NW.
[Opened Nov. 13, 1914.]
National Mosaic Co
Site for truck house in the area bounded by B, Second, and H Streets NW, and Second Street NE, approximately 50 by 100 feet.
[Opened Nov. 16, 1914.]
L. S. Lipscomb & Co.: 8ast 55.83 feet front of lot 7, square 724, with frontage on C Street of 55.83 feet by depth of 168 feet to 30-foot alley, containing 9,388 square feet, and improvements (frame house, No. 118
C Street NE.). \$10,888 H. R. Howenstein Co.:
Proposition No. 1.—South 7.79 feet of lot 16; the north 12.21 feet of lot 15 and 20 feet of lot 15 by depth of 115 feet to alley, being a total of 40 feet frontage on First Street NE., between B and C Streets, containing 4,600 feet, at 33 per square foot, or
square feet 12,000  Proposition No. 3.—All of lots 22 and 23, square 676, having a frontage of 40 feet by depth of 134 feet to alley, located on H Street NE., between North Capitol and First Streets, containing 5,760 square feet 10,000  Geo. N. Rider:  All of lots for and 51 square 620 known as premises 421 and 422 New Jersey Avenue NW
Geo, N. Rider: All of lots 50 and 51 square 620 known as pramices 421 and 422 New James VIII
All of lots 50 and 51, square 630, known as premises 421 and 423 New Jersey Avenue NW., between D and E Streets, having a frontage of 44 feet by depth of 142 feet, over 6,250 square feet, about \$1.88 per square foot.

D M Monday	
R. M. Morrison: Premises Nos. 15 and 17 Second Street NE., being north half of original lot 8 and south half of original lot 9, square 759, being a frontage of 45 feet by depth of 100 feet. Adjoining property, No. 19 Second Street, can be included to bring frontage over 50 feet; this property is 18.54 feet front; price for 15 and 17 Second Street, \$8,000; for 19 Second Street, \$2,500;	
total\$10,50 Joseph I. Weller:	00
Proposition No. 1.—All of lot 10, containing 4,293 square feet, and the south 21.87 feet by full depth of lot 11, containing 1,257 square feet, in all, 5,550 square feet, square 724, being the northeast corner of First and C Streets NE	
of Maryland Avenue, containing in all 3,848 square feet. 5,7 Edward P. Schwartz:	72
Proposition No. 1.—Part of sublot 222, square 675, being 55 feet on North Capitol Street by 100 feet on Myrtle Street; lot is improved by a large 3-story brick building; price for building and ground.	96
Proposition No. 2.—All of lots B and C in square 573, having 48 feet front by approximately 120 feet deep to alley, improved by 3-story brick, known as 125 Indiana Avenue NW.; price for building and ground.	
B. O. Holtzman Co.:  Proposition No. 1.—All of lots 7 and 8, square 569, fronting 60 feet on E Street, north side, between First and Second Streets, by depth of 100 feet to an alley, with improvements	
Proposition No. 2.—Lot of 4, and K and W, square 630, fronting 60 feet on New Jersey Avenue NW., between D and E Streets, adjoining Sixth precinct police station on north, containing 6,389 square feet, with improvements; lot 4 running back to alley	00
just east of Second Street, containing 10,405 square feet, with improvements thereon 20,0 Nozz.—All bids rejected.	00
Alterations to electric lighting system at No. 18 engine house.	
[Opened Nov. 27, 1914.]	
Carroll Electric Co.*\$1	62
Removing frame buildings and grading on lot 14, square 823, premises Nos. 711, 71. 715, 717 Fifth Street SE.	\$,
[Opened Jan. 25, 1914.]	
Cranford Paving Co.       \$1,045.         T. Edw. Clark, Jr.       850.         Bidney L. Hechinger Co.       1,071.         J. B. Latimer.       1,000.         H. O. Brown.       (1)         William F. Cush.       1,200.	00 00 00
A. R. Thompson * 497. Wallace J. Hill. 488.	50
Furnishing and installing electric lighting system at No. 5 engine house.	•
[Opened Feb. 12, 1915.]  J. E. Taylor & Co	00
E. C. Gramm	00
Thos. J. Williams 598. C. A. Muddiman & Co 297.	
C. A. Muddiman & Co. 297. Capital Electric Co. 356. Carroll Electric Co. 279.	00
Furnishing and installing electric lighting system at No. 9 engine house.	
[Opened Feb. 12, 1915.]	
J. E. Taylor & Co	97
R. C. Gramm. 3 Thos. J. Williams. 6	80 05 90
Capital Electric Co.	25 79

<sup>1</sup> Will remove buildings and grade lots for old material in buildings.

# Furnishing and installing electric lighting system, engine house No. 10.

#### [Opened Feb. 12, 1915.]

Bidders.	Price, job complete.	If service duct in house to be paid for by District, deduct from bid—
J. E. Taylor & Co. E. C. Gramm * C. A. Muddiman & Co. Thos. J. Williams Capital Fleetric Co. Carroll Electric Co.	383.00 417.50 675.15	\$33.00 33.10 - 30.00 33.10 83.10

#### Reconstructing fish wharves, Potomac River front.

#### [Opened Feb. 11, 1915.]

	Items.						
Bilders.	No. 1. Ordinary excava-	Dredging	No. 3. Revet- ment wall	No. 4. 3 wharves complete, ex- cepting items 1, 2, and 3.			
	tion (above mean high water), per cubic yard.	tion be-	(includ- ing neces- sary exca- vation),	Bid A.	Bid B.	Bid C.	
Jas. L. Marshall.  Penn Bridge Co Interstate Construction Co. Dorsey & Miller Co Arthur L. Smith & Co W. D. Murray & Co. (Inc.) Snare & Triest Co. Clarke & Winston Co Fred Drew & Co. (Inc.) Alsop & Pierce Sanford & Brooks Co	.54 .75 .495 .60	\$0.68 .48 .80 .54 1.50 .80 .73 .70 .62 .30	\$24.00 17.50 18.42 19.90 19.73 21.00 19.44 18.00 21.79 20.70	30, 297, 00 21, 900, 00 48, 375, 00 21, 586, 00 25, 700, 00 22, 628, 00 24, 558, 00 23, 473, 75	\$53,313.00 22,593.00 27,655.00 25,000.00 49,100.00 21,791.00 26,600.00 24,610.00 26,141.00 22,457.18 20,695.00	\$49,300.00 39,000.00	

#### 1 Wall included.

Note.—Bid A contemplates wharves with reinforced concrete decks supported directly by timber pile bents as shown on drawings Nos. 1, 2, and 3. Bid B contemplates wharves with reinforced concrete decks supported by concrete arched walls; the arched walls being supported by timber piles as shown on drawings Nos. 1 and 4. Bid C contemplates wharves with reinforced concrete decks supported on concrete piles, per design to be submitted by bidder.

Electric lighting system, Smallwood School.	
[Opened Mar. 1, 1915.]	
Capital Electric Co	\$597
Thos. J. Williams	661
E. C. Gramm J. E. Taylor & Co.	499
Carroll Electric Co	598
Note.—All bids rejected.	
Installing electric power and heating devices, Smallwood School.	
[Opened Mar. 1, 1915.]	
Carroll Electric Co	1369
Capital Electric Co	357
E. C. Gramm. J. E. Taylor.	386
Thos I Williams	258

NOTE.—All bids rejected.

#### Furnishing and installing plumbing at the juvenile court.

#### [Opened Mar. 29, 1915.]

Peter C. Schaefer	£53.00
E. F. Brooks Co.*	41.26
J. Carl Darnall	49.00

Constructing swimming pools, showers, baths, toilets, lockers, and screens for Rosedals, Georgetown, and Howard playgrounds.

#### [Opened Mar. 31, 1915.]

					Bidders.					
Items.	Chas. W. B. Smith.	Arthur L. Smith & Co.	Melton Construc- tion Co.	James L. Marshall.	Kennedy-Campbell Co.	Skinker & Garrett.	M. F. Comer & Co.	W. H. McCray.	Richardson & Burgess.	W. E. Mooney.
For constructing the 3 pools and accessories.	\$28 871	\$16 981 OO	\$15,000,00	\$16 100	<b>\$</b> 13, <b>53</b> 8. 58	\$15 139	\$21 .540	\$16 400	<b>\$20</b> 580	\$16 373
Alternate A, deduct		321.00	150.00	104	192.60		150	330		
Alternate B, deduct		210.00								165
Alternate C, deduct	<i></i>	564.06			150.75	524	525			
Alternate D, deduct		1,200.00	1,088.00	475	1,329.00	1,795	195	1,600	2,070	1,500
For constructing pool,						١.		i 1		
etc., at Rosedale	<b></b> .	5,687.00			4,512.86		7, 180	5, 450	· · · · · · ·	5,395
Alternate A, deduct		107.00			64.20		50	110		75
Alternate B, deduct	<b></b> .	70.00		<b></b> -	10.00					45
Alternate C, deduct		188.00		<b></b> -	50.25		175			175
Alternate D, deduct		400.00	406.40	<b></b> -	443.00	598	65	525	· · · · · · ·	497
For constructing pool,		l		l	i	l				ı
etc., at Howard	i		- 100 00	ł	4 510 00	- ~~	7 100			
playgrounds		5,687.00		····	4, 512. 86		7, 180	5,540	•••••	5,591
Asternate A, deduct		107.00			64.20 10.00			110 50		75
Alternate B, deduct		70.00 188.00		· · · · · · · ·	50.25		60 175			45
Alternate C, deduct		400.00		· · · · · · ·	443.00					175 495
Alternate D, deduct For constructing pool,		300.00	340.00	· · · · · · · ·	133.00	3790	00	323	•••••	190
etc., at Georgetown	1	l			ŀ	ł				ŀ
playgrounds	1	5,687.00	5, 250.00	İ	4, 512. 86	5,078	7, 180	5,540		5, 591
Alternate A, deduct	l	107.00			64.20	65	7,150	110	• • • • • • • • • • • • • • • • • • • •	75
Alternate B, deduct	l	70.00			10.00			50	· · · · · · · · ·	45
Alternate C, deduct	l	188.00			50.25				•	175
Alternate D, deduct		400.00			443.00				•	500
zince mano D, adduct	l <b></b>	1 -00.00	1 310.00		1 -20.00		~	"	•••••	1 ~~

Alternate A: If the fence posts only are set and rails and wire omitted, deduct from proposal.
Alternate B: If the turnstiles are omitted, deduct.
Alternate C: If 10 of the dressing rooms are omitted, deduct.
Alternate D: If the cement for concrete walls and floors and paving be furnished free to the contractor at the sites, deduct.
Norg.—All bids rejected.

# Alteration and cell work at police precinct No. 3, Washington, D. C.

# [Opened Apr. 16, 1915.] Samuel A. Gaskins \$4,391 Skinker & Garrett 4,844 Henry B. Davis\* 4,378 William E. Mooney 4,628

Construction of swimming pools, showers, baths, toilets, lockers, and screens for Rosedale, Georgetown, and Howard playgrounds.

#### SECOND LETTING.

			Bid	ders.		
Items.	Jas. L. Marshall.	Arthur L. Smith & Co.	W. E. Mooney.	Skinker & Garrett.	Kennedy- Campbell Co.	8. A. Gaskins & Bon.*
Alternate A, deduct. Alternate B, deduct. Alternate B, deduct. Alternate C, deduct. Alternate D, deduct. Alternate D, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate C, deduct. Alternate D, deduct. Alternate D, deduct. Alternate D, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct. Alternate B, deduct.	250. 20 99. 00 600. 00 900. 00 4, 860. 00	107.00 70.00 188.00 433.00 1,663.00 107.00 70.00 188.00 433.00 1,663.00 5,456.00 107.00 70.00 188.80	\$16, 373.00 165.00 540.00 1,500.00 5,892.00 75.00 45.00 175.00 497.00 1,934.00 5,891.00 75.00 45.00 175.00 45.00 175.00 175.00 175.00 175.00 175.00 175.00 175.00 175.00 175.00 175.00 175.00	\$15, 139. 00 175. 00 524. 00 1, 796. 00 5, 192. 00 65. 00 58. 00 174. 00 5, 088. 00 1, 628. 00 5, 089. 00 1, 628. 00 5, 078. 00 1, 628. 00 5, 078. 00 1, 628. 00 1, 628. 00 1, 628. 00	\$13, 538. 58 50. 00 450. 00 1, 329. 00 3, 621. 00 4, 512. 86 64. 20 150. 00 1, 207. 00 4, 512. 86 64. 20 16. 60 150. 00 1, 207. 00 4, 512. 86 64. 20 16. 60 150. 00 1, 207. 00 4, 512. 86 64. 20 16. 60 150. 00 1, 207. 00 4, 512. 86 64. 20 1, 207. 00 1, 207. 00 1, 207. 00 1, 207. 00	\$13,990.0 300.0 750.0 1,200.0 4,012.0 4,680.0 50.0 100.0 250.0 420.0 1,337.0 4,780.0 250.0 250.0 250.0 100.0 250.0 1,337.0
E. Taylor & Co E. C. Gramm <sup>a</sup> arroll Electric Co hos. J. Williams . A. Muddiman & Co	[Opend	· · · · · · · · · · · · · · · · · · ·	915.]  o. 6 engin		••••••	15.0 21.3
A. Muddiman & Co	••••••				••••••••••••••••••••••••••••••••••••••	327.00 348.00 297.50
. E. Taylor & Co			•••••		••••••••	

### 5. REMOVAL OF CITY WASIE.

J. E. Taylor & Co.
E. C. Gramm
C. A. Muddiman & Co.\*
Thos. J. Williams
Carroll Electric Co.

Collection and disposal of miscellaneous refuse in the District of Columbia.

[Opened Oct. 15, 1914.]	
': (per annum)	34, 40
per annum)*	28, 40 23, 90
	[Opened Oct. 15, 1914.] :

\$34.00 21.00 15.00 32.00

## Collection and disposal of dead animals in the District of Columbia.

#### [Opened Oct. 15, 1914.]

Bidders.	1-year	3-year	5-year
	period (per	period (per	period (per
	annum).	annum).	annum).
Ches. F. Mann. Moorman Drayage Co.	<b>\$</b> 3,600	<b>*\$2,98</b> 8	\$2,640 2,900

#### Collection and disposal of ashes in the District of Columbia.

#### [Opened Oct. 15, 1914.]

Bidders.	1-year	3-year	5-year
	period (per	period (per	period (per
	annum).	annum).	annum).
James W. Bean Contracting Co. L. M. Johnston. Warner Stutler.	*\$69,000 81,000	\$72,500 77,500 80,000	\$74,990 79,887 78,000

#### Collection and disposal of garbage in the District of Columbia.

		[Opened Oct. 15, 1914.]	
Washington Fertil	izer Co.:		
1-veer period (1	ner annum'	)	\$78 400
2-year period (	per annum		60, 840
5 year period	per ennum	<b>)</b>	62 340
o-hear beried ()	por annicas,	,	02,010

Collection and disposal of ashes and refuse from buildings under the control of the Commissioners of the District of Columbia. Onened Word 1015 1

[Opened may 1, tare.]	Cents.
Moorman Drayage Coper cubic yardJas. W. Bean Contracting Co*do	37 <u>1</u>
Warner Stutlerdo	45

#### REPORT OF THE WHARF COMMITTEE.

WASHINGTON, October 6, 1915.

Sir: The wharf committee has the honor to submit the following report of its operations for the fiscal year ending June 30, 1915:

Accompanying is a list of wharf property now under lease on the Potomac River, the Anacostia River (or Eastern Branch), and James Creek Canal.

The rentals received from Potomac River wharves during the year amounted to \$19,121.64; from the Anacostia River, \$956.25; and from James Creek Canal \$1,367.50; making the total amount received during the year \$21,445.39. This is a decrease from the rentals received during the preceding fiscal year of \$4,896.81. The reason for this decrease is that coatain whenever which were formally under lease here been existed. decrease is that certain wharves which were formerly under lease have been assigned by the commissioners for municipal use.

#### AVAILABLE WATER FRONTAGE.

The actual water frontage in the District of Columbia, with the exception of canals devoted to commerce, is about 2 miles. The total available water frontage, exclusive of canals, which is practicable of commercial development is about 18 miles; this frontage, however, includes the portion set apart for parks and purposes of the United States, about 8 miles.

#### WHARVES ALONG THE WASHINGTON CHANNEL.

The largest amount of wharf property is that along the Washington Channel. This has a total frontage on the city side of 9,275 linear feet, of which 4,675 linear feet, between the grounds of the War College and the south curb line of N Street, is under the jurisdiction of the Chief of Engineers, United States Army, and of the remaining 4,600 feet, between the south curb line of N Street south and Fourteenth Street SW., 4,241 feet is under the jurisdiction of the Commissioners of the District of Columbia. and 359 feet between Thirteenth and Fourteenth Streets is under the jurisdiction of the United States.

The leases for these wharves are generally for a period of five years, expiring March 15, 1918. The basis of rental is a net return of 4 per cent on the estimated value of the wharf property, with the requirement that the lessee shall make improvements and repairs. No appropriation has been made for making a general improvement of this water frontage, except an appropriation for the construction of fish wharves and wharf for the District property yard, nor for dredging adjacent to the wharves, and the wharf property, particularly the piling structures, is deteriorating rapidly.

Along the frontage are located the harbor police station, the dock of the harbor boat,

the house and dock of the fire boat, the District morgue, a District property yard, and

the municipal fish wharf and market.

During the year the wharf property at the foot of Ninth Street SW., which was formerly under the jurisdiction of the purchasing officer for use as a property yard, was assigned to the superintendent of the workhouse, Occoquan, Va., to be used as a property yard and a depot for the handling of brick, stone, and other materials produced at the District workhouse at Occoquan, Va.

The wharf property at the foot of Tenth Street, formerly assigned to the superintendent of the workhouse, was transferred to the superintendent of weights, measures,

and markets as an adjunct to the fish wharves and market adjoining.

#### MUNICIPAL FISH WHARF AND MARKET.

Work is in progress on the construction of three wharves for the municipal fish wharf and market, for which an appropriation of \$50,000 has been made. Appropriation is also available for the construction of market buildings on this site, and plans for these are being designed by the municipal architect. These market buildings and wharves will be under the control of the superintendent of weights, measures, and markets.

#### WHARVES ALONG THE ANACOSTIA RIVER.

This frontage is largely undeveloped, owing to the uncertainty of ownership of the abutting land and riparlan rights. One wharf which was formerly under lease has been turned over to the superintendent of sewers as a municipal wharf.

#### WHARVES ALONG THE GEORGETOWN CHANNEL.

All the wharf property along this frontage is under private control with the exception of the foot of streets. Two leases have been entered into with private parties. one for the foot of Thirty-third Street and the other for the foot of G Street NW.

#### JAMES CREEK CANAL.

The public space bordering this canal from N Street to P Street is under lease, with a few minor exceptions where leases have expired and the lessee did not desire to renew his lease.

Very respectfully,

DANIEL E. GARGES, Chairman, D. E. McComb, RUSSELL DEAN

Wharf Committee.

To the Engineer Commissioner.

# List of wharf property under lease, Sept. 1, 1915.

# POTOMAC RIVER FRONT.

Name of lessee.	Location.	Expires.	Water front- age.	Area.	Rental per year.
			Lin.ft.	80 (1	
R. M. Allen	Sec. 2, structures 39 and 40, foot of 9th St. SW.	Mar. 15,1916	40	Sq. ft. 2,400	\$70 <b>.00</b>
American lee Co	Blacksmith shop and office building on Water St., between 9th and 10th Sts.,	Nov. 30, 1915		8, 522	580. 88
Do	Sec. 2. Wagon shed, Water St., between 9th and	Monthly			257.76
Samuel Bensinger	10th Sts. Sec. 1, structures 26 to 30, inclusive, foot of N St. SW.	Sept. 30, 1917	120	7,000	460.00
Capital Yacht Club.	Foot of 9th St. SW., between structures 39 and 41.	June 30, 1916	24	2,080	75.00
James H. Carter &	Sec. 3, structures 24 to 27, inclusive, foot of 13th St. SW.	Monthly	200	26,600	1,000.00
Co. L. A. Clarke & Son.	See 2 structures 68 to 77 inclusive in-	Aug. 1,1918	280	45,800	1,900.00
Colonial Beach Co	cluding 701, foot of 10th St. SW. Sec. 1, structures 31 to 37, inclusive, Water St. SW. between M and N Sts. Foot of 31st St. NW.	Mar. 15,1918	182	8,000	500. <b>00</b>
Cranford Paving Co.	Foot of 31st St. NW	Feb. 1, 1918	53 168	38,000	240.00
J. Maury Dove Co. (Inc.).	Sec. 3, structures 39 and 40, foot of 18th St. SW.	Monthly	l	20,000	1,570.00
G. W. Forsberg	Sec. 2, structures 22 to 33, inclusive, ex-	Mar. 15, 1918	100 156	18,000	120.00 788.00
W. E. Garner	cept 24, foot of 8th St. Sec. 2, structures 36, 37, and 38, foot of	Mar. 15,1916	44	8, 320	100.00
Wm. C. Hamburg Johnson & Wimsatt	9th St. SW. Sec. 3, structure 23, foot of 13th St. SW Sec. 3, structures 5 to 11, inclusive, foot	Apr. • 15, 1916 Mar. 15, 1918	18 190	1,440 43,500	60. <b>00</b> 2 <b>, 244. 00</b>
Mount Vernon & Marshall Hall	of 12th St. SW. Sec. 1, structures 59, 62, 63, and 64, foot of M St. SW.	do	125	10,000	600.00
Steamboat Co. Norfolk & Washing-	Sec. 1, structures 41 to 49, inclusive, and	do	220	20,300	1,500.00
ton Steamboat Co.	57 to 69, inclusive, foot of M St. SW. Sec. 1, structures 60 and 65 to 72, inclu-	Dec. 16, 1916	190	44,000	2, 345, 00
Potomac & Chesa-	sive, foot of 7th St. SW.	Mar. 15,1918	198	35,600	1,596.00
peake Steamboat Co.	Sec. 2, structures 11 to 21, inclusive, foot of 8th St. SW.	Mai. 13,1910	1.50	'	1,350.00
Wm, A. Ragan	Sec. 3, structures 21 and 22, foot of 13th St. SW.	Mar. 15,1916	65	4,200	150.00
Jos. P. Stephenson, trading as Ste- phenson & Bro.	Sec. 2, structures 1 to 10, inclusive, foot of 7th St. SW.	Jan. 81,1917	300	59,900	2, 300. <b>00</b> .
Wimsatt & Church.	Sec. 2, structures 34 and 35, foot of 9th St. SW.	Mar. 15, 1918	80	18,000	720.00
District of Columbia:	<b>34.</b> 5 W.		1		Ì
Municipal fish wharfand mar-			700	152, 100	
ket. Do	inclusive. Sec. 3, structures 1 to 4, inclusive, Water St., between 10th and 12th Sts. SW.		126	11,015	<b></b>
Workhouse	All water frontage on Water St., be- tween H and I Sts. SW., except struc- tures 54, 55, 64, and wagon shed, sec. 2,	•••••••	503	87,848	
Fire-boat wharf.	leased to American Ice Co.				1
Morgue	between N and M.	•••••••••••		ļ	
Harbor master's	Sec. 1, structures 41 and 42, Water St., between N and M Sts.				
wharf. United States, site	Sec. 1, structure 38, and sec. 2, slip be- tween structures 41 and 42. Water St., between 134 and 14th Sts. SW.		359	39 07#	
of central heat and power plant.	THE STATE OF THE PROPERTY OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF TH	••••••	309	38,975	
power plant.					

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# List of wharf property under lease, Sept. 1, 1915—Continued.

#### ANACOSTIA RIVER FRONT (EASTERN BRANCH).

Name of lessee.	Location.	Expires.	Water Frontage.	Rental per year.
Harry D. Bailey	North side, just west of Anacostia Bridge to west abutment wall of old Anacostia Bridge.	Oct. 18,1915	Lin. ft. 81	\$76.00
C. C. Carlsen	Water front, between building lines of 4th	June 1,1916	50	50.00
Edward S. Dean Eastern Power Boat Club.	St. SE. Water front between the lines of N St. SE. Directly west of the west abutment of the old Anacostia Bridge.	Monthly June 30, 1916	93	67.50 162.75
Lewis E. Smoot Standard Oil Co	Foot of 3d St. SE., square 803	Apr. 1,1916 Dec. 31,1915	106.3	400.00 200.00
District of Columbia, sewer division.	St. SE. Foot of 1st St. SE., opposite lot 1, square south of square 744: square south of square 744.		330	
United States, Super- intendent Capital Building and Grounds.	Foot of 1st St. SE., opposite square south of square 744.		40	
Total				956. 25
JAMES CREEK	CANAL, BETWEEN N STREET AND	THE ANACOS	TIA RIV	ER.
W. A. Anderson.  Galliher & Huguely.  Robert Murphy.  Henry Raum.  Mrs. Frieda Rentz.  Washington Brick & Terra Cotta Co.  George C. Taylor.  Total.	•	June 30, 1916 do	127 377 445 50 25 125 570	\$158, 75 282, 75 173, 50 25, 00 12, 50 427, 50 225, 00
		,	· · · · · · · · · · · ·	-,

#### TOTAL RENTALS.

Potomac River frontage.	\$19, 121, 64
Anacostia River (or Eastern Branch) frontage	956.25
James Creek Canal	1,367.50

# REPORT OF THE BOARD FOR THE CONDEMNATION OF INSANITARY BUILDINGS.

WASHINGTON, September 20, 1915.

Gentlemen: We have the honor to submit the following report of the transactions of the board for the condemnation of insanitary buildings for the year ended June 30, 1915:

Houses on which action was taken in response to notice, for the year ending June 30, 1915.

	Demoished.	Repaired.	Pending.
Buildings in alleys. Buildings in streets.	19 42	28 42	21 46
Total		70	a

Buildings acted upon since the creation of the board for the condemnation of insanitary buildings up to and including June 30, 1915.

	Exam- ined.	Demol- ished.	Repaired.	Pending.
Buildings in alleys. Buildings in streets.	3,814 2,575	648 1,328	458 980	21 46
Total	6,389	1,976	1,438	67
Total number of meetings of the board for the control buildings for the year ended June 30, 1915  Preliminary notices served	g the yeinspection nhabitar ction und ther quantihe cond-	ear, in on of all this, vacader exist ters in emnation	connectic inhabite int house ing regul streets ar n of insar	8 61 12 10 on ed 7,843 7,843 472 ad 197 5,771 ed 348

Seven cases have been referred to the corporation counsel for appropriate action in the police court, which resulted in the vacation of the buildings in question.

It has not been necessary for the board to demolish any buildings during the year

through failure on the part of the owner or owners to take appropriate action.

No cases are pending before the Supreme Court of the District of Columbia relative

to the condemnation of buildings. The usual attention is still being given to structures unprovided with sewer and water connections, with a view of assisting the health department in eliminating box privies by making the owner or owners provide such connections or remove the structure if the condition does not warrant the expense of connecting it with the public

sewer and water main. Repairs have been made by many owners and agents on dwellings both in streets and alleys for which no notices were served, and, consequently, no record was kept by the

board.

The act of Congress approved September 25, 1914, entitled "An act to provide, in the interest of public health, comfort, morals, and safety, for the discontinuance of the

use as dwellings of buildings situated in the alleys of the District of Columbia," marks the beginning of the end of alley dwellings in Washington.

In connection with the above-mentioned act of Congress a house-to-house inspection has been made during the year of the alleys in the District of Columbia, checking the number of occupants, adults and children, number of brick and frame dwellings, and number vacant. In connection with this work 568 eight by ten photographs were taken showing the type of houses and the general formation of those alleys. The investigation disclosed the following results:

	Adults.	Children.	Brick dwell- ings.	Frame dwell- ings.	Vacant.
Southwest. Southeast. Northeast. Northwest.		490 429 342 1,493	408 268 257 1,398	162 52 20 148	126 82 60 438
Total	5,698	2,754	2,831	382	706

In connection with the alley inspections, plats are being prepared and these plats and photographs and data pertaining thereto are being bound in loose-leaf binders, so that a comprehensive idea may be conveniently obtained of the alleys in Washington, both in regard to paving, structural, and social conditions.

> Captain, Corps of Engineers, United States Army, Assistant to the Engineer Commissioner,
> WM. C. WOODWARD, M. D., Health Officer, District of Columbia, MORRIS HACKER,

Inspector of Buildings, District of Columbia Board for the Condemnation of Insanitary Buildings.

The Commissioners of the District of Columbia.

# REPORT OF THE ASSISTANT ENGINEER IN CHARGE OF ROCK CREEK PARK, D. C.

WASHINGTON, September 20, 1915.

SIR: I have the honor to submit herewith a report of the operations and statement of expenditures in Rock Creek Park for the fiscal year ended June 30, 1915, as follows: The amount appropriated for the care and improvement of the park and of the Piney Branch Parkway was \$18,000, and in addition \$2,000 was appropriated for the removal of dead and down timber.

The general work of care and maintenance of the park, including repairs to roads and paths, mowing, etc., was done at a cost of \$11,211.95, including \$1,537.43 for oiling roads. A part of this amount was used for alterations in the grounds, which were made necessary by sewer construction, though the greater part of such repair was borne by the sewer department.

The road connecting the Ridge Road with the Beach Drive, about 2,000 feet long, was macadamized at a cost of \$403.40. The regrading, widening, and macadamizing, for a width of 18 feet, of the Ross Road, which was previously an earth-surface road, was undertaken during the year; and a large part of the work was completed. For the lower course of the road, local stone, o'stained from the construction of the Rock Creek intercepting sewer through the park, was used, materially lessening the cost. This road will le opened to automo' iles in Septem' er of this year, there'y affording a new route for this class of travel and serving to distribute it over a greater territory, which will lessen the danger of its congestion. The amount expended on this road was \$3,782.65, of which \$2,763.45 was expended for la' or and \$1,019.20 for stone.

All of the hay and corn needed for the feed of the 12 horses used were produced in the

park; the farming operations costing \$443.55.

The old Klingle house, used 'y the foreman of the park as a residence, was repaired by removing the roof, new guttering, and cornices, pointing the masonry and painting the woodwork, at a total cost of \$743.89.

The amount of \$1,994.75 was expended for the removal of dead and down timber. Most of the wood removed was in such a state of decay as to be worthless for any purpose. One hundred and fifty cords of firewood of good quality was supplied to the pu lic schools at \$5.50 per cord delivered; the amount received therefor, after deducting the cost of delivery, leing paid into the Treasury of the United States. In addition, a large amount of fence rails and posts of excellent quality were produced from the dead chestnut trees.

The ravages of the chestnut blight in the park forest became very evident during the sar. This blight has leen moving slowly southward through New York, Pennsylvania, and Maryland for a number of years, and it appears to be impracticable to check it by any reasonable expenditure. The germs are carried from tree to tree by birds, insects, and squirrels and possibly also by the wind. The total destruction of the chestnut trees in the park and in this vicinity appears to be a matter of a few years only, it is the intention to check the spread of the 1 light by cutting as many of the affected

trees as the appropriations will permit during the fall and winter.

Due to the extraordinary rainfall, one freshet of unusual height occurred during the spring of 1915, destroying a number of small foot bridges and lodging quantities of débris in the creek. The bridges have been rebuilt at higher elevations above the stream where it was practicalle, and most of the débris has been cleared up. The

expenditure for this purpose was unusual and to some extent unforeseen.

The matter of protection from fires during the season when the ground is covered with dead leaves is one that should receive attention by the provision of sufficient funds for preventing and fighting such fires. Several such fires, one of serious nature, destroying a large quantity of the native Kalmia, occurred in the park during the last winter season, and others occurred in the timbered lands adjoining the park. One such fire might easily destroy shrubbery which could not be naturally reproduced in decades. These fires are usually started by the careless use of matches by visitors, or spread from adjacent land into the park. It is impossible to employ sufficient patrols to detect the fires at once after they are started, in so large an area, but all precautions are being taken as far as funds permit to prevent their spread by simple appliances and organization of the force.

As the facilities for reaching it have been better known, increasing use of this park is being made for picnic parties for churches, Sunday schools, societes and smaller groups.

This considera'ly increases the necessary cost of the care of the grounds.

The customary use of part of the park, during July and August, as a summer camp for poor children (Camp Good Will), was continued by the Associated Charities; and one of the buildings was used as a hospital for sick infants; both with undoubted good results.

A very large use was made of the available swimming places in the creek during the year; and it is recommended that some provision be made for the erection of sheds where the bathers can change their clothing, and for improving the bathing pools and toilet conveniences. Permits are now issued to boys of the age of 12 and under only.

It is proposed during the coming year to maintain the usual care of the park, to open some of the more unused sections by suita' le clearing, and to construct such additions to the system of roads and paths as the funds on hand will permit.

Respectfully submitted.

L. R. GRABILL,
Assistant Engineer, Rock Creek Park.

ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA, Secretary, Board of Control, Rock Creek Park.

#### Rock Creek Park, 1915.

ppro	opriation for the removal of dead and down timber, 1915			\$2,000.00
alan ppro	ce. opriation for the care and improvement of Rock Creek Park, 19	15	••••••	18,000.00
lack:	ed stone			167. 43
orag ools umi	e and implements oer			505. 5 74. 5 19. 3
lard larne	ware		•••••••	37.95 47.35
est,	as below			16, 590. 4
Job No.	as below	Labor.	Material.	1, 409. 56 16, 590. 4 18, 000. 00
Job	1	Labor.	1 1	18,000.0

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### REPORT OF SUPERINTENDENT OF THE DISTRICT BUILDING.

WASHINGTON, D. C., August 30. 1915.

Sir: I have the honor to report in addition to the routine work incident to the maintenance, repairs, and operation of the Listrict Building and its power plant for

the fiscal year 1915, the following completed or provided for:

Fifth story west corridor subdivided by the erection of a wood and glass partition to provide 500 square feet floor space for the accounting branch of the physical valuation bureau of the Tublic Utilities Commission.

Third story west corridor subdivided by the erection of a wood and glass partition

to provide 125 square feet floor space for the street cleaning department.

Second-story west corridor subdivided by the erection of a wood and glass partition to provide 175 square feet floor space as antercom for the major and superintendent of police.

Room 305 subdivided by the erection of a wood and glass partition.

Room 202 (bacteriological laboratory) subdivided by the erection of a wood and glass partition to provide a separate room within the laboratory in which to operate apparatus that gives off heat.

Improved signals to passengers were installed at the elevators, and improved signals to operators provided for.

Forty-five per cent of the lighting fixtures of the office rooms were changed from the direct to the semiindirect type, resulting in marked improvement in the illumination of the rooms changed. The additional current required by the semiindirect method will be more than offset by a saving in fuel effected by improved power-plant operating methods inaugurated in May, 1915, which give promise of a saving in fuel of baout 20 per cent during the nonheating season.

During the year 21,538 kilowatt hours of current was furnished the electrical depart-

ment for the telephone, fire alarm, and police patrol-box system, and electrical power, steam, compressed air, and hot water for industrial purposes were supplied to two laboratories of the health department and the laboratory of the inspector of asphalt

and cement.

Very respectfully,

W. D. A. Anderson. Captain, Corps of Engineers, United States Army, R. G. POWELL, Captain, Corps of Engineers, United States Army,

Jointly Superintendents, District Building.

The Commissioners of the District of Columbia. (Through the Engineer Commissioner.)

#### REPORT OF SUPERINTENDENT OF STABLES.

Washington, September 11, 1915.

Sir: I have the honor to submit the following report showing the operation of the stables under the care of the superintendent of stables, engineer department, District of Columbia, for the fiscal year 1915:

#### LIST OF FIVE STATEMENTS ATTACHED.

1. Location of stables and departments using same.

2. Number of employees and departments to which assigned.

3 Number of horses, mules, vehicles, and harness, and departments to which assigned.

4. Amount of appropriations allotted and expenditure of same.

5. Average cost of upkeep of horses.

The Congress of the United States, in making appropriations for the District of Columbia, does not provide funds for the operation and maintenance of the engineer stables except to the extent of designating and making provision for several annual employees.

This, therefore, necessitates the superintendent requesting the several heads of the departments to annually make allotment to the superintendent on a pro rata basis from appropriations designated by said head for the maintenance of the stables. This method, however, was revised by Capt. J. L. Schley, assistant to the Engineer Commissioner, District of Columbia, and last year witnessed the inauguration of his simplified plan whereby funds were acquired with which to operate the

stables, the same being as follows: (1) Overhead charges, or transportation for the assistants to the Engineer Commissioner, District of Columbia; (2) departmental charges; and (3) quarterly requisitions on departments for forage and other supplies. Since this system has been in force it has proven entirely satisfactory as well as greatly

diminishing the number of papers handled.

With respect to the establishment of a municipal barn, in connection with which I reported the merits thereof in my last annual report, and to which report I now, respectfully, again refer, I beg to say that the needs for same has not diminished one iota during the last year, and my recommendation for the establishment thereof is again renewed. The need of such a municipal asset is being daily brought more forcibly before us. The District now owns many horses and a number of motor vehicles; the number of the latter, on account of the rapid advance of the motor as a means of transportation, will be, I am quite sure, materially increased from time to time, being cognizant also of additions to the number of horses. Thus it is quite apparent the gain and economical administration, as well as the means of rendering the highest possible service, to be derived from the concentration at one point of all the transportation equipment owned by the District, together with the necessary shops for the upkeep of same, and it is my belief that a structure can be erected of such design as to take care of present and future conditions with slight alterations from time to time to meet the conditions as they arise.

It is recommended, on account of its value as a pasturage, that the commissioner continue to retain control of the land in Rock Creek Park sometime ago courteously loaned to them by the board of control of that park for that purpose. This tract has now attained a high state of cultivation for grazing, and in view of the fact that animals in order to be kept in the best physical condition should have a certain period of rest each year it is aimed to so treat them, and for this purpose we have available the above farm where they are free from work, shoes, and harness, and may roam as they see fit. Several other departments of the District owning horses, appreciating the

value of such a place, take advantage thereof.
Several years ago there was loaned to the superintendent of suburban roads for the purpose of planting in corn paddock No. 3 on the above tract, it being understood that that official, upon surrendering the use thereof, was to resow it in grass. present time this plot of ground is urgently needed for pasturing, for during the past year we have had an average of about eight horses in pasture at a time, and in order that they may have proper nourishment and the freedom that they require, it is respectfully recommended that the use of same by the above official be rescinded and that he be directed to resow same in grass for use by the superintendent of engineer **s**tables

Respectfully.

J. W. BEALE, Superintendent of Stables.

Capt. J. S. Schley,

Corps of Engineers, United States Army, Assistant to Engineer Commissioner.

STATEMENT No. 1.—Location of stables and departments using same.

1. First and Canal Streets SW.—Disbursing officer, plumbing inspector, sewer department, surface division (part), surveyor; weights, measures, and markets.

2. Second and Canal Streets SW.—Electrical department.

3. U Street Stables, U Street, between Sixteenth and Seventeenth Streets NW.—Muni-

cipal architect, repair shop, surface division (part), engineer commissioner and assistanta.

# STATEMENT No. 2.—Number of employees and departments to which assigned.

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lectrical department. Ingineer commissioner and assistants. Itunicipal architect. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunicipal inspector. Itunic				1		
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Of this total allotment of \$5,663.90, there was expended for—
Forage       \$647.96         Pay rolls       4,590.70         Supplies       243.30
leaving a balance of \$181.94, which was returned to the appropriations.
STATEMENT No. 5.—Average cost of upkeep of horses during fiscal year 1915.
Forage (allowance for 1 horse for 1 month):         100 pounds rye straw, straight, No. 2, at \$0.796 per 100 pounds.       \$0.80         210 pounds long timothy hay, at \$1.040 per 100 pounds.       2.13         210 pounds mixed clover hay, at \$1 per 100 pounds.       2.10         324 pounds cats, at \$1.687 per 100 pounds.       6.48         50 pounds bran, at \$1.27 per 100 pounds.       64
Total cost of forage for 1 horse per month
Forage for 1 horse for 1 year         146.40           Shoes, 80 cents per month         9.60
Total

# APPENDIX.

## Specifications for paving streets and avenues with sheet asphalt.

1. Work.—The work to be done under this contract will consist of paving with sheet asphalt such streets, avenues, and roads in the District of Columbia, or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia under appropriations for the fiscal year ending June 30, 1916.

A list of streets to be paved under this contract will be furnished on application. In case the price bid justifies such action, the commissioners reserve the right to add The commissioners also reserve the right to regulate the order in streets to this list. which the work shall be executed, as may appear most advantageous to the District. The work will be so arranged that if the contractor elects to do so, he may complete it during the working season of 1915, provided, however, that should the commissioners deem it necessary, for any reason now unforeseen, to delay any of the paving work until the season 1916, such work will be withdrawn from the contract if the contractor has elected to complete the work during the season of 1915. All work under the contract must be completed prior to June 30, 1916.

2. Amount of work.—The estimated amount of this work is as follows:

Squar	e yards.
Standard sheet asphalt pavement on concrete base	58,000
Vitrified blocks, gutters on concrete base	4, 300

These amounts are approximations only and may be considerably varied from; but they will be used in canvassing bids and the awards will be based thereon. be scheduled on the basis of the prices named for pavements with a 6-inch concrete base, but the prices named for a 5-inch base will be incorporated in the contract and

such work as may be so directed will be executed and paid for as such.

3. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the road-bed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition: provide watchmen, lights, fences, and other precautionary measures necessary to the protection of person and property; furnish all materials (except as specified) and all tools and implements, labor and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements and parkings, both public and private, to satisfactory condition.

4. Old material.—Old material removed from the streets will be the property of the

District of Columbia and the work of removal will be paid for at prices named in paragraph 13 of these specifications. Granite blocks, cobble, old curb, etc., must be re-

moved to the nearest property yard or to such other places as the engineer may direct.

5. Grading and subgrade.—Lines and grades will be established by the engineer and no work will be commenced until these are given. The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling with a roller weighing not less than 5 tons, and by heavy ramming at places which cannot be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class. Any filling will be done in layers not exceeding 12 inches in thickness, and all materials used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor. All measurements will be made in place and payments made thereon. Should the grading involve work in both "cut" and "fill," the measurement of it

will be computed on the basis of the volume of the material in place in the "cut" only; the excavated material from the "cut" section deposited in the "fil," will not be again paid for as "fill." Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

#### STANDARD SHEET-ASPHALT PAVEMENT.

Six-inch concrete base.—Upon the bed prepared as described in paragraph 5 there will be laid 6-inch foundations of concrete as directed, made of the following materials by volume: One part Portland cement, three parts sand, seven parts gravel.

Broken stone, run of the crusher, may be substituted for part or all of the gravel, at the option of the contractor.

(a) Cement.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. The cement while in storage or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which, in the opinion of the engineer, has been injured by age or exposure. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and to charge said contractor with the cost of same at the rate of \$1.25 per barrel of Portland cement for each and ever, barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District. All cement sacks are to be returned by the contractor, and for those not returned or not in good condition a charge of 11 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time not exceeding seven days as the engineer commissioner may think necessary.

Cement furnished by the contractor that has not been tested and accepted by the Bureau of Standards and that is identified as such will be subject only to the following retests by the District of Columbia: Firmness, initial set, hard set, 24-hour tensile.

(b) Sand.—The sand used shall be clean, sharp river or pit sand, containing both

fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, or other foreign matter and not showing when shaken with water and after subsidence

more than 5 per cent, by volume, of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to

pea size, well graduated.

(e) Occording stone.—At the option of the commissioners the contractor may be required to use as a constituent of concrete base broken stone delivered from the quarries owned and operated by the District of Columbia at Occoquan, Va. The stone referred to will be issued to the contractor on the District wharf at Tenth and Water Streets SW., or on scows alongside the District wharf at the foot of Thirtieth Street west, or on scows alongside any wharf that the contractor may select where he may prefer to unload the material. The stone so furnished will be issued to the contractor on the basis of 2,500 pounds to the cubic yard, if issued by weight, and will be charged against him at a price therefor to be fixed by him as an item of his The price for deliveries on scows at the foot of Thirtieth Street, or at any other wharf selected by the contractor, will be 15 cents per cubic yard less than the price bid for deliveries on the wharf at Tenth and Water Streets.

(f) Water.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

(g) Platforms.—Platforms shall be provided, if so ordered by the engineer, upon which all sand, gravel, and broken stone for concrete shall be placed when brought

upon the line of work and kept there until used.

(h) Mixing.—The thorough mixing and incorporation of all material will be insisted upon. If done by hand labor the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added. The stone or gravel, after being drenched with water, shall be added to the mixed sand and cement. The drenching shall not be done while the stone or gravel is in the wheelbarrow. The whole mass shall be thoroughly turned over with shovels not less than four times and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

(i) Setting.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing a new

batch

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels, so as to give the requisite thickness after being tamped, and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reasons for removal and replacement of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

7. Five-inch concrete base.—All provisions of the specifications for a 6-inch concrete base shall apply to a 5-inch concrete base which shall differ from the 6-inch base only

in respect to the thickness thereof and the price paid therefor.

8. Asphaltic binder.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing a 11-inch screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than 11 inches, and the stone, after passing the heating drums, shall not contain less than 5 nor more than 15 per cent of material passing a No. 10 screen.

The stone will be heated not higher than 350° F., in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60° to 90°, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. Should it appear dull from overheating or lack of cement, it will be rejected. While hot it will be hauled upon the work, spread upon the base so that when compacted it will be at least 11 inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course not show a proper bond, it must be immediately ately removed and replaced by and at the expense of the contractor. Binder and top shall not be taken from the yard to the site of the work when weather conditions are. in the judgment of the engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather between the hours of sunrise and sunset as often as may be deemed necessary, and in cold weather cover it with a

material suitable for its protection.

9. Asphalt wearing surface.—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand, and fine absorbent

mineral dust.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 9c.

(b) Petroleum oil.—The oil used in the manufacture of asphalt cement shall be a

petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics: Free from water and foreign matter; flash point not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent. The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and placed in a copper holder. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner, may be used

in place of petroleum oil

(c) Asphalt cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residium, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the

engineer commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

350 penetration.

(2) When a briquette of the bitumen having a minimum cross section of one-quarter centimeter, having a penetration of 50°-53° at 77° F. is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20

centimeters before breaking.

3. When the bitumen is heated in an open tin box ‡ inch deep by 2½ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a less by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement must never be neated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate
by subsistence while in a molten condition it must be thoroughly agitated before
drawing from storage and while in use in the supply kettles so as to insure a uniform

cement.

These properties shall be determined by tests made by uniform methods, descrip-

tions of which are on file in the office of the engineer commissioner.

(d) Sand.—The sand in use shall be free from mud, hard grained, and moderately sharp. In sifting it should have at least 15 per cent of material that would be caught on a 40 mesh per inch screen, 25 per cent of material that will pass an 80 mesh to the inch screen, and 10 per cent at least must pass a 100 mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased at the discretion of the engineer commissioner.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass 30-mesh screen, and at least 85 per cent pass a 100-mesh

screen

(f) Asphalt paving mixture.—The materials complying with the above specifications shall be mixed in proportion by weight, depending upon their character and the traffic on the street and upon the character of the asphalt and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified the mixture will be condemned; its use will not be permitted; and, if aleady placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

The sand, or the mixture of sand and dust, and the asphalt cement will be heated separately to about 300° F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphalt cement at the required temperature and in the proper proportion in a suitable apparatus, so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will

be weighed in the presence of inspectors as often as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements when required in suitable tin boxes

and cans. He shall have access to all branches of the works at any time and shall have

the right to obtain samples of all materials from the source of supply.

(g) Laying asphalt surface.—The pavement mixture prepared in a manner thus indicated will be brought to the ground in carts and wagons at a temperature of not less than 250° or more than 350° F. The contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 2½ inches by means of hot iron rakes, in such manner as to give uniform and regular grade, so that, after having received its ultimate compression, it will have a net thickness of at least 1½ inches. This depth will be constantly tested by means of gauges furnished by the engineer commissioner. The surface will then be compressed by steam rollers, after which a small amount of hydraulic cement will be swept over it, and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface. The street will be barricaded and the barricades remain for such length of time as deemed necessary by the engineer commissioner. Binder or topping shall not be laid when weather conditions are, in

the judgment of the engineer, unsuitable for the work of laying the pavement.

10. Laying vitrified block.—Vitrified-block gutters will ordinarily be 134 inches wide, laid on a concrete base of the same depth, material, and proportions, and laid in the same manner as prescribed in these specifications for the concrete base under asphalt

pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 4 parts of the sand specified in paragraph 6b and 1 part of Portland cement, thoroughly mixed, will be spread thereon as a bed for the paving blocks to the depth of not less than one-half inch and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed thus prepared for them the blocks will be set on edge, with the longest

dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a lap of

not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several courses and ramming the plank with a heavy rammer. The ramming will be continued until the blocks reach a firm, unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a thin,

easily flowing grout of neat natural cement.

A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will in that case extend to the bottom of the cross ties, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards and must

be hauled to the work at his expense.

11. Additional work.—The following specifications will cover incidental work which

may be required of the contractor:

(a) Setting 6 by 20 inch granute and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set and brought to line and grade, with plumb face. Spalls of stone, hard-burned brick, or other acceptable substance prepared for the purpose will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth, and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made, and the lines and grades furnished strictly followed.

(b) Setting 8 by 8 inch granite curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set and 18 inches wide, will be excavated to receive the concrete and the The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In this trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screen pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the

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same conditions as prescribed for laying cement concrete base for sheet asphalt pave-On the base prepared and laid as above the curb will be placed before the concrete has set and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete, by the use of heavy wooden mauls. The face of the curb must be plumb and true to line and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified block gutters are to be laid in front of the curb any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(c) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the engineer.

(d) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary position of it upon the line of work, and no new concrete is required other than that sufficient to embed the

stone and back and adjust it to line and grade.

(e) General instructions.—All curb will be furnished to the contractor at the District property yard and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as

determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained. Should the adjoining brick footwalks be disturbed in order to set or reset the curb the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

12. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifica-

Prices paid for this work will be as stated below:

Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.
(3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.

(4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per linear foot. (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per

(6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.

(7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot. (8) Dressing, jointing, and cutting curb, etc. (stonecutter's time) including setting-up labor, 65 cents per hour.

(9) Removing old rubble, cobble, flagging stone and brick, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard.

(10) Removing old asphalt blocks, including haul not to exceed 2 miles, 20 cents per square yard.

- (11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square
- (12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter mile or fraction thereof.
- (13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.

  (14) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.
  - (15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
- (16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard. Digitized by GOOGLE

(17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.

(18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per

cubic yard.

(19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard. (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30

per square yard.

(21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per

square yard.

(22) Laying or relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.

(23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.

(24) Laying and relaying granite block, 75 cents per square yard.

(25) Relaying cobble and rubble, 30 cents per square yard.

(26) Repairing cement walks including haul, \$1.50 per square yard.
 (27) Repairing brick walks, 25 cents per square yard.

(28) Laying asphaltic or broken stone base in place, \$3 per cubic yard.
(29) Laying Portland cement concrete base in place, \$5 per cubic yard.
(30) Adjusting manhole tops and basin covers to grade, \$1.50 each.

(31) Adjusting water-valve casings to grade, \$3 each.

(32) Asphaltic top, 47 cents per cubic foot. (33) Asphaltic binder, 39 cents per cubic foot.

(34) Adjusting electric light or telephone manhole tops to grade, as follows:

(a) Size, 14 by 18 inches, \$1 each. (b) Size, 36 by 36 inches, \$1.50 each.

(c) Size, 6 by 6 feet, \$4 each.

13. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

14. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs), or on the cost of grading, the removal of old materials and of the overhaul on the same, and of stone cutting.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1886, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question

of inferiority

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty anty period will be made by the contractor when ordered by the engineer commissioner.

15. Retain fund.—The retain fund shall be subject to the control of the commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so the com-missioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

16. Work in railroad space.—Certificates of indebtedness against street railway companies will be given to the contractor if necessary for all work done and all material furnished by him for the space which must be paved and kept in repair by street rail-

way companies in accordance with existing laws.

17. Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work by the permission of the commissioners before the work

s begun.

18. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

#### SPECIFICATIONS FOR LAYING ASPHALT-BLOCK PAVEMENTS.

1. Work.—The work to be done under this contract will consist of paving with asphalt block on a 5-inch or a 6-inch concrete base, such streets, avenues, and roads in the District of Columbia, or parts thereof, or doing any portion of such work, as may be ordered in writing by the Commissioners of the District of Columbia, under appropriations for the fiscal year ending June 30, 1916. The estimated amount is 11,000 square yards.

Bids will be scheduled on the basis of the price named for the pavement with a 5-inch base, but the price named for a 6-inch base will be incorporated in the contract,

and such work as may be directed will be executed and paid for as such.

- 2. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of person and property; furnish all materials (except as specified), and all tools and implements, labor, and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.
- 3. Old material.—Old material removed from the street will be the property of the District of Columbia, and the work of removal will be paid for at prices named in paragraph 9 of these specifications. Granite block, cobble, old curb, etc., must be removed to the nearest property yard or to such other places as the engineer may direct.
- 4. Grading and subgrade.—Lines and grades will be established by the engineer, and no work will be commenced until these are given. The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling, with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class. Any filling will be done in layers not exceeding 12 inches in thickness, and all materials used for this purpose will be subject to approval. If improper or unsuitable material be used, it will be removed at the cost of the contractor. All measurements will be made in place, and payments made thereon. Should the grading involve work in both "cut" and "fill," the measurement of it will be computed on the basis of the volume of the material in place in the "cut" only; the excavated material from the "cut" section deposited in the "fill" will not be again paid for as "fill." Should the amount of cut on the street not suffice to make the necessary fill, the amount borrowed from other designated localities will be paid for as grading.

ties will be paid for as grading.

5. Six-inch concrete base.—Upon the bed prepared as described in paragraph 4, there will be laid a 6-inch foundation of concrete as directed, made of the following

materials by volume: 1 part Portland cement, 3 parts sand, 7 parts gravel.

Broken stone, run of the crusher, may be substituted for part or all of the gravel

at the option of the contractor.

(a)-Ciment.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-

grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. The cement while in storage or upon the work or while he properly protected, and no compact shall be properly protected. being hauled upon the work, shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and to charge said contractor with the cost of same at the rate of \$1.25 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District. All cement sacks are to be returned by the contractor and for those not returned or not in good condition a charge of 11 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time not exceeding seven days as the engineer commissioner may think necessary; said tests to be conducted in accordance with the methods prescribed in Circular 33 of the Bureau of Standards, United States Government specifications for Portland

cement.

Cement furnished by the contractor that has been tested and accepted by the Bureau of Standards and that is identified as such will be subject only to the following retests by the District of Columbia: Firmness, initial set, hard set, 24-hour tensile.

(b) Sand.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips, or other foreign matter and not showing when shaken with water and after subsi-

dence more than 5 per cent, by volume, of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleaned from all foreign substance, and shall be screened and washed, if so ordered by the Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances.

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to pes

size, well graduated.

(e) Occoquan stone.—At the option of the commissioners there may be required to use as a constituent of concrete base, broken stone delivered from the quarries owned and operated by the District of Columbia at Occoquan, Va. The stone referred will be issued to the contractor on the District wharf at Tenth and Water Streets SW., or on scows alongside the District wharf at the foot of Thirtieth Street west, or on scows alongside any wharf that the contractor may select where he may prefer to unload the material. The stone so furnished will be issued to the contractor on the basis of 2,500 pounds to the cubic yard, if issued by weight, and will be charged against him at a price therefor to be fixed by him as an item of his bid. The price for deliveries on scows at the foot of Thirtieth Street or at any other wharf selected by the contractor will be 15 cents per cubic yard less than the price bid for deliveries on the wharf at Tenth and Water Streets.

(f) Water.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

(g) Platforms.—Platforms shall be provided if so ordered by the engineer upon

which all sand, gravel, and broken stone for concrete shall be placed when brought

upon the line of the work, and kept there until used.

(h) Mixing.—The thorough mixing and incorporation of all material will be insisted. upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel after being drenched with water shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels. not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of

mixing and laying each batch shall be performed as expeditiously as possible by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring 1 barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with 1 barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

If so ordered by the engineer, the concrete base shall be sprinkled in warm weather between the hours of sunrise and sunset as often as may be deemed necessary; and in

cold weather covered with a material suitable for its protection.

(i) Setting.—Concrete shall not be used after it has begun to show evidence of No concrete which has once set shall be used as material for mixing a new setting.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels so as to give the requisite thickness after being tamped and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reasons for removal and replacement of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

6. Five-inch concrete base.—All provisions of the specifications for a 6-inch concrete base shall apply to a 5-inch concrete base which shall differ from a 6-inch base

only in respect to the thickness thereof and the price paid therefor.

7. Asphalt blocks.—The size of the blocks will be 2 by 5 by 12 inches, and a variation of one-fourth of an inch from these dimensions will be sufficient ground for rejecting

any block.
All bids must be accompanied by a specimen block of the size and quality described in these specifications, labeled with the name of the bidder and locality of the fac-tory. Bids not accompanied by specimen blocks will not be accepted. The blocks will be tested for specific gravity; all blocks furnished must be equal in quality to the sample, as determined by the engineer commissioner. The blocks to be composed of asphalt, petroleum oil, asphalt cement, mineral dust, and crushed stone.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 50 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts of the flux to produce the

asphalt cement described in paragraph 9c.

b) Petroleum oil.—The oil used in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics: Free from water and foreign matter; flash point not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent. The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and placed in a copper holder. The residue in the retort, after distilling, must be fluid at 75° F., and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner may be used in place of petroleum oil.

(c) Asphalt cement.—The asphalt cement must be practically free from water and

shall not at any time reach a temperature high enough to injure it.

If an asphalt is accepted that is readily affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid.

The asphalt cement must comply with the following requirements and must in any case be subject to the approval of the engineer commissioner.

(1) For the purpose of testing the asphalt cement having a penetration of 20°-23°

at 77° F., on the Dow penetration machine with a No. 2 needle, 100 grams, 5 seconds, its composition shall be so regulated by the addition, if necessary, of standard fine mineral dust that it will contain 50 per cent of bitumen soluble in carbon bisulphide.

This cement shall be so tough at 32° F. that a prism 1 centimeter square by 8 centi-

meters long between supports will not break under impact at center with less than 15 centimeters drop of a 25-gram weight striking a vertical plunger having a horizontal face of 1 centimeter by 1 millimeter resting on the asphalt prism.

(2) Degree of penetration of the asphalt cement to be fixed by the engineer com-

missioner.

(3) When the cement is heated in an open tin box 1 inch deep by 21 inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven, it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition, it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descrip-

tions of which are on file in the office of the engineer commissioner.

(d) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a 100-mesh

(e) Crushed stone.—The crushed stone in use shall be from any tough, hard rock. and shall not contain any appreciable amount of soft ingredients, such as mica, soft sandstone, or shale. On sifting not more than 3 per cent shall be retained on a 4-mesh per inch screen, at least 40 per cent must be retained on 20-mesh per inch screen, and at least 12 per cent must pass a 100-mesh per inch screen. If the stone does not contain the desired fine material, mineral dust can be added to make up the deficiency. and in any case at least 5 per cent of such mineral dust shall be used.

(f) Manufacture.—The materials complying with the above specifications shall be mixed in proportions by weight, depending upon their character, which will be determined by the engineer commissioner, but in any mixture the percentage of bitumen soluble in carbon bisulphide shall not exceed the limits 6 to 9 per cent.

If the proportions of the mixture are varied in any manner from those prescribed,

the blocks will not be accepted.

The stone and dust and the asphaltic cement must be mixed while hot, and the mixture must be compressed into blocks by methods meeting with the approval of the engineer commissioner.

Samples of all material entering into the composition of the block shall be furnished when required, in suitable tin boxes and cans, to the inspector of asphalt and cements. who shall have access to all branches of the works at all times.

Blocks are to be manufactured with a total minimum compression of not less than

360,000 pounds per block, press pressure.

8. Method of laying blocks on concrete base.—The 2-inch blocks are to be laid on this concrete base in a paving bed of 1 part Portland cement and 4 parts sand, at least one-half inch thick, and as much thicker as may be necessary, due to inequalities in surface of concrete base, so that the blocks, when tamped in place, will be securely embedded in this paving bed and wholly supported by it, and will present a uniform surface with close joints and proper grade and crown. The pavement will then be thoroughly grouted with a thin easily flowing grout of 1 part neat Portland cement and 1 part fine sand.

9. Additional work.—The following specifications will cover incidental work which

may be required of the contractor:

(a) Setting 6 by 20 inch granite and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench in width will be 14 inches from the curb line toward the building line of the street and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set and brought to line and grade, with plumb face. Spalls of stone, hard-burned brick, or other acceptable substance prepared for the purpose will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently, and afford a firm and stable support for it, without the use of small chips and fragments, used as "shimming" pieces, to wedge the stone in place. After the curb has been properly placed, and adjusted to line and grade, the trench will be filled with gravel of approved quality, to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made,

and the lines and grades furnished strictly followed.

(b) Setting 8 by 8 inch grante curb.—This curb will be set in the following manner:

A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set, and 18 inches wide, will be excavated to receive the concrete and the The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In this trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screen pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pavements. On the base prepared and laid as above, the curb will be placed before the concrete has set, and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete, by the use of heavy wooden mauls. The face of the

curb must be plumb and true to line, and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade, the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified block gutters are to be laid in front of the curb, any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(c) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except

(c) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench, if so ordered by the

engineer.

(d) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary position of it upon the line of work, and no new concrete is required other than that sufficient to imbed

the stone and back and adjust it to line and grade.

(e) General instructions.—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done as deter-

mined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items, as hereinafter stated. The cost of dressing, joining, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained. Should the adjoining brick foot walks be disturbed in order to set or reset the curb, the portion so disturbed shall be repaved, if required by the engineer, without cost to the District.

10. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District speci-

fications. Prices paid for this work will be as stated below:

(1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

(2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.
(3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents

per linear foot.

(4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per linear foot.

(5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.

(6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.

(7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.
(8) Dressing, jointing, and cutting curb, etc. (stonecutter's time), including setting-up labor, 65 cents per hour.

(9) Removing old rubble, cobble, flagging stone, and brick, vitrified block or brick,

etc., including haul not to exceed 2 miles, 15 cents per square yard.

(10) Removing old asphalt blocks, including hauf not to exceed 2 miles, 20 cents per square yard.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square yard.

(12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter mile or fraction thereof.

- (13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.
- (14) Grading and hauling earth not to exceed 1,000 feet, 55 cents per cubic yard.
  (15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
- (16) Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.



(17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.

(18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per

cubic yard.

(19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic yard. (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30

per square yard. (21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per

oguare vard. (22) Laying or relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.

(23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.

(24) Laying and relaying granite block, 75 cents per square yard. (25) Relaying cobble and rubble, 30 cents per square yard.

(26) Repairing cement walks, including haul, \$1.50 per square yard.

(27) Repairing brick walks, 25 cents per square yard, (28) Laying asphaltic or broken stone base in place. Laying asphaltic or broken stone base in place, \$3 per cubic yard.

(29) Laying Portland cement concrete base in place, \$5 per cubic yard. (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.

(31) Adjusting water-valve casings to grade, \$3 each.

(32) Asphaltic top, 47 cents per cubic foot.

(33) Asphaltic binder, 39 cents per cubic foot. (34) Adjusting electric light or telephone manhole tops to grade, as follows:

(a) Size, 14 by 18 inches, \$1 each. (b) Size, 30 by 36 inches, \$1.50 each.

(c) Size, 6 by 6 feet, \$4 each.

11. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character, or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined

by the engineer, plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is

ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

12. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion as indicated on the final youcher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs), or on the cost of grading, the removal of old materials and of the overhaul on the same, and of stonecutting.

It is further expressly understood and agreed that if any of the pavements laid should for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question of

inferiority.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranteer. anty period will be made by the contractor when ordered by the engineer commissioner.

13. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so the com-missioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the mainte-nance of the work shall be made good by further deposit.

14. Work in railroad space.—Certificates of indebtedness against street railway companies will be given to the contractor if necessary for all work done and all material furnished by him for the space which must be paved and kept in repair by street rail-

way companies in accordance with existing laws.

15. Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is begun.

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16. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

# SPECIFICATIONS FOR RESURFACING AND REPAIRING ASPHALT AND COAL-TAR PAVEMENTS.

1. Work.—The work to be done under this proposal and contract includes the renewal or resurfacing of such asphalt and coal-tar pavements as may be ordered from time to time by the Commissioners of the District of Columbia, including the repairs of sidewalks and other pavements disturbed in doing said work, or changed to con-

form to new grades if so ordered by the engineer.

The renewal of the surface of cuts made in such pavements for tapping sewers and pipes and for other purposes, and generally all patching and miscellaneous work necessary to keep the above-mentioned pavements in good condition for travel, may be included in the work ordered to be done under this contract should the prices bid under items 4 and 5 of the proposal be more economical than the cost for which such work can be done by means of the portable asphalt plant belonging to the District of Columbia. This plant is authorized by law to be used by the commissioners for certain purposes, including the above, so long as the costs of operation shall be less than the costs of similar work under contract. The right of the commissioners to require the contractor under the above conditions to do the work enumerated will not be exercised, except with the contractor's assent, for a period of less than six months or more of continuous performance of such work.

or more of continuous performance of such work.

2. Amount of work.—The amount of work is dependent upon the annual appropriation for "Repairs to streets," which was \$365,000 for the fiscal year ending June 30, 1914, and is expected to be \$339,185 for the fiscal year ending June 30, 1915, these figures being contained in the appropriation bill pending and now in conference.

figures being contained in the appropriation bill pending and now in conference.

For the purpose of canvassing bids the following approximate estimate of the amount of work to be done during each fiscal year of this contract will be used (standard asphalt surface and binder for repairs and miscellaneous work and material for street railway repairs not estimated, and will not be considered in the canvass of bids):

- 3. Bids.—The contractor will, for the prices bid, do all the work prescribed in these specifications; do all the necessary grading and trimming of the roadbed and all rolling; provide bridges, fences, and other means of maintaining travel on intersecting streets, roads, and railroads, and all private driveways after giving due notice to parties affected thereby; maintain the same in good and safe condition as long as may be necessary, and then remove such temporary expedients and restore such roads to their proper condition; provide watchmen, lights, fences, and other precautionary measures necessary to the protection of persons and property; furnish all materials (except as specified) and all tools and implements, labor and transportation required to lay and put in complete order for use the specified pavement; and do each and all of these to the satisfaction of the engineer. Upon the completion of the work he will remove any temporary structures erected during the progress of the work, and restore all fixtures, pavements, and parkings, both public and private, to satisfactory condition.
- 4. Old material.—The amount of old material to be cut and removed each day shall be decided by the engineer commissioner or his agents. Should the contractor remove more than ordered, he must replace it with new material without cost to the District. No payment will be made for any coal-tar or asphalt surface removed in making repairs, and the material thus removed will become the property of the contractor, to be disposed of by him. Any coal-tar or asphalt surface and binder removed from concrete base in resurfacing work will be paid for at the price named in paragraph 16 of the specifications, and such material will become the property of the contractor and be disposed of by him unless the engineer commissioner should elect to retain title to any of this material, in which event the contractor will for the price named deliver the same to a distance not to exceed 2 miles from the site of the work. Where



the old pavement, base and surface, is removed for the purpose of laying a new pavement the material will be the property of the District and the work will be paid for at the prices named in paragraph 16 of the specifications. Granite blocks, cobble, old curb, etc., must be removed to the nearest property yard or to such place within the section of the city being repaired as the engineer commissioner may direct.

#### ASPHALT PAVEMENTS.

5. Grading and subgrade.—The area over which the pavement is to be laid must be excavated to the proper depth below the surface of the pavement when completed, any objectionable or unsuitable matter below the bed being removed to such depth as may be directed by the engineer and the space filled with suitable material thoroughly compacted. The bed, after being trimmed so as to be parallel to the surface of the pavement when completed, will be thoroughly compacted by rolling, with a roller weighing not less than 5 tons and by heavy ramming at places which can not be reached by the roller, dampening the bed before rolling and ramming, if required, to the satisfaction of the engineer. No extra allowance will be made for trimming or rolling, but the volume of earth, etc., removed will be paid for as grading of its class.

6. Concrete base.—Upon the bed thus prepared there will be laid a 6-inch foundation of concrete as directed, made of the following materials by volume: 1 part Portland cement, 3 parts sand, 7 parts gravel.

Broken stone, run of the crusher, may be substituted for part or all of the gravel at

the option of the contractor.

(a) Cement.—The cement used will be a standard brand of Portland cement, uninjured by age or exposure, and delivered at the work in original undamaged packages. The right is reserved to reject any cement that has not established itself as a high-grade Portland cement and has not been made by the same mill for two years and given satisfaction in use for at least one year under climatic and other conditions of at least equal severity as those of the work proposed. The contractor shall keep the cement in store, under proper cover, in the city of Washington, and shall properly protect it until used. The engineer shall have the right to test the cement as he judges necessary and to reject any or all lots. The cement, after being accepted, can not be transferred or used by the contractor on other work without the consent of the engineer commissioner. No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time as the engineer commissioner may think necessary. The cement while in storage or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, subject to inspection for at least 40 days after notifying the inspector of asphalt and cements, before it can be used on the streets, if deemed advisable by the engineer commissioner. Should the contractor's work be delayed by his failure to keep himself supplied with the necessary amount of approved cement, the District shall have the right to furnish him with tested cement from the stock on hand at its warehouse and charge said contractor with the cost of same at the rate of \$1.50 per barrel of Portland cement for each and every barrel so furnished, and collect the amount due therefor from any moneys found to be due to said contractor by the District. All cement sacks are to be returned by the contractor and for those not returned or not in good condition a charge of 10 cents per sack will be made.

No cement shall be used upon the work until it has been tested in the office of the engineer commissioner and accepted by him, the tests to extend over such length of time, not exceeding 28 days, as the engineer commissioner may think necessary; said tests to be conducted in accordance with the methods prescribed in Circular 33 of the Bureau of Standards, United States Government specifications for Portland

cement.

(b) Sand.—The sand used shall be clean, sharp river or pit sand, containing both fine and coarse grains, but free from sewage, mud, clay, mica, paper, leaves, chips. or other foreign matter and not showing when shaken with water and after subsidence

more than 5 per cent, by volume, of silt.

(c) Broken stone.—Stone used in concrete must be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter when the run of the crusher is substituted for gravel. The run of the crusher shall not contain over 1 per cent of material passing a No. 10 sieve. The stone shall be thoroughly cleansed from all foreign substance, and shall be screened and washed, if so ordered by the engineer. Sand, detritus, or any material other than hard, angular fragments of stone will be considered foreign substances. Digitized by Google

(d) Gravel.—Gravel shall be clean, washed gravel, and shall not contain pebbles greater than 2 inches in their largest dimensions, and shall run from that down to pea size, well graduated.

(e) Water.—Water used for mortar and concrete shall be fresh and clean, free from

earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

(f) Platforms.—Platforms shall be provided upon which all sand, gravel, and broken stone for concrete shall be placed when brought upon the line of the work, and kept there until used.

(g) Mixing.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added; the stone or gravel, after being drenched with water, shall be added to the mixed sand and cement; the drenching shall not be done while the stone or gravel is in the wheelbarrow; the whole mass shall be thoroughly turned over with shovels, not less than four times, and mixed upon a water-tight platform until every particle of stone or gravel is completely enveloped with mortar. The whole operation of mixing and laying each batch shall be performed as expeditiously as possible, by the aid of machinery or a sufficient number of skilled men. If the concrete is mixed in batches requiring one barrel of cement, the platform must not be smaller than 10 by 12 feet, nor will a larger amount of concrete than can be made with one barrel of cement be allowed to be mixed in one batch by hand. In mixing by machinery the materials must be so delivered as to insure a uniform product of the specified proportions of all ingredients to the satisfaction of the engineer.

(h) Setting.—Concrete shall not be used after it has begun to show evidence of setting. No concrete which has once set shall be used as material for mixing a new

batch.

Each batch of concrete after being mixed shall be spread in place in horizontal layers by means of shovels so as to give the requisite thickness after being tamped and shall then be thoroughly compacted. Any evidence of lack of compaction will be regarded as sufficient reasons for removal and replacement of the base. Hauling over base less than three days old must not be allowed unless planks are laid.

7. Asphalt binder.—The binder course shall be composed of clean, broken stone, equal in quality to the stone for the base, and passing an inch and a quarter screen. Eighty-five per cent of this shall pass said screen in its longest dimensions, and of the remaining 15 per cent no piece shall have a larger dimension than 11 inches, and the

stone, after passing the heating drums, shall not contain less than 5 nor more than 15 per cent of material passing a No. 10 screen.

The stone will be heated not higher than 350° F. in suitable appliances. It is then to be thoroughly mixed by machinery with asphalt cement, such as is acceptable for surface cement, penetration 60 to 90, at such temperature and in such proportions that the resulting binder will have life and gloss without an excess of cement. it appear dull from overheating or lack of cement it will be rejected. While hot it will be hauled upon the work, spread upon the base so that when compacted it will be at least 14 inches in thickness, and immediately rammed and rolled until it is cold. Should the resulting course not show a proper bond, it must be immediately removed and replaced by and at the expense of the contractor. Binder and too shall not be taken from the yard to the site of the work, when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement.

The contractor shall not enter upon a concrete base in order to lay the binder course until it has obtained sufficient strength for such a purpose, and during the period between laying the base and binder he shall properly protect it, and, when ordered by the engineer, shall sprinkle it in warm weather between the hours of sunset and sunrise as often as may be deemed necessary, and in cold weather cover it with a

material suitable for its protection.

8. Asphalt wearing surface.—The wearing surface of the pavement shall be composed of asphalt, petroleum oil, asphalt cement, clean, sharp-grained sand, and fine

absorbent mineral dust.

(a) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. The refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphide and 100 parts shall not require more than 30 parts of the flux to produce the

asphalt cement described in paragraph 8c.
(b) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics: Free from water and foreign matter; flash point, not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent. The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort, provided with a thermometer and placed in a copper holder. The residue in the retort after distilling, must be fluid at 75° F., and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner may be used in

place of petroleum oil.

(c) Asphalt cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No.? needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer

commissioner.

Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the

engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than

350 penetration.

(2) When a briquette of the bitumen having a minimum cross section of one square centimeter, having a penetration of 50°-53° at 77° F. is tested for ductility at 77° F., the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking.

(3) When the bitumen is heated in an open tin box three-fourths inch deep by 2½ inches in diameter at a temperature of 300° F. for eighteen hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent and it must not have been

hardened over 50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it.

When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descrip-

tions of which are on file in the office of the engineer commissioner.

(d) Sand.—The sand in use shall be free from mud, hard grained, and moderately On sifting it should have at least 15 per cent of material that would be caught on a 40 mesh per inch screen, 25 per cent of material that will pass an 80 mesh to the inch screen, and 10 per cent at least must pass a 100 mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used. The amount of fine material may be increased at the discretion of the engineer commissioner.

(e) Mineral dust.—This shall be any fine Portland cement or lime stone dust, the

whole of which shall pass a 30-mesh screen, and at least 85 per cent pass a 100-mesh

(f) Asphalt paving mixture.—The materials complying with the above specifications shall be mixed in proportion by weight depending upon their character and the traffic on the street, and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphide shall not exceed the limits, 9 to 13 per cent. If the proportions of the mixture are varied in any manner from those specified the mixture will be condemned; its use will not be permitted; and, if already placed on the streets, it must

be removed and replaced by proper materials at the expense of the contractor.

The sand or the mixture of sand and stone dust, and the asphalt cement, will be heated separately to about 300° F. The dust, if limestone, will be mixed while cold with the hot sand in the required proportions and then mixed with the asphalt cement at the required temperature, and in the proper proportion in a suitable apparatus, so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges will be weighed in the presence of inspectors as often as may be desired.

Samples of all material entering into the composition of the pavement shall be supplied to the inspector of asphalt and cements when required, in suitable tin boxes and cans; he shall have access to all branches of the works at any time, and

whall have the right to obtain samples of all materials from the source of supply.

(g) Laying asphalt surface.—The pavement mixture prepared in a manner thus indicated will be brought to the ground in carts or wagons at a temperature of not less than 250° or more than 350° F., the contractor must provide canvas covers for use in transit. It will then be shoveled into place and thoroughly spread to a thickness of at least 21 inches by means of hot iron rakes, in such manner as to give uniform and regular grade, so that, after having received its ultimate compression, it will have a net thickness of at least 1½ inches. This depth will be constantly tested by means of gauges furnished by the engineer commissioner. The surface will then be compressed by steam rollers, after which a small amount of hydraulic cement will be swept over it, and it will then be thoroughly compressed by a steam roller weighing not less than 175 pounds to the inch run, the rolling being continued for not less than five hours for every 1,000 yards of surface. The street to be barricaded. Binder or topping shall not be leid when weather conditions are in the independent. topping shall not be laid when weather conditions are, in the judgment of the engineer, unsuitable for the work of laying the pavement. Barricades to remain for such

length of time as deemed necessary by the engineer commissioner.

9. Asphaltic base.—Asphaltic base will be composed of clean broken stone, free from spalls, that will pass through a 2-inch ring, well rammed, and rolled with a steam roller weighing not less than 5 tons. The rolling will be continued until the stone ceases to creep before the roller, and it is evident that the final compression has been reached. It will then be thoroughly coated with asphaltic paving cement of approved

quality, as directed.

10. Asphaltic concrete on concrete base.—(a) Concrete base.—The base is to conform in all respects to the specifications herein in relation to concrete base for sheet asphalt

pavements. (See paragraph 6.)
(b) Paving materials.—The paving materials shall be composed of crushed trap rock screenings, concrete sand, and mineral dust in the following proportions: Trap rock screenings, 2 parts; concrete sand, 1 part; and mineral dust, at least 5 per cent of the above aggregate; mixed with asphalt cement. The various constituents of the mineral aggregate and asphalt cement shall be of the same kind and conform to

District specifications for such materials for the year ending June 30, 1913, as follows:

(c) Trap rock.—The trap rock shall be of a quality to be approved by the engineer, and shall be equal to that used by the District of Columbia for macadam roadways. The crushed stone will vary in size from 1 inch to screenings and shall be devoid

of dust.

(d) Sand.—The sand shall be hard grained and moderately sharp. On shifting it should have at least 25 per cent of material that would be caught on a 20-mesh per inch screen, and 5 per cent of material that will pass an 80-mesh to the inch screen. If the sand to be used does not contain the desired fine material, mineral dust can be added to make up the deficiency, and in any case at least 5 per cent of such mineral dust shall be used.

(e) Mineral dust.—This shall be any fine Portland cement or limestone dust, the whole of which shall pass a 30-mesh screen and at least 85 per cent pass a 100-mesh

screen.

(f) Asphalt.—The asphalt shall be refined until homogeneous and free from water and shall not at any time be heated to a temperature high enough to injure it. refined product shall contain at least 90 per cent of bitumen soluble in carbon bisulphid, and 100 parts shall not require more than 30 parts of the flux to produce the asphalt cement described in paragraph 10h.

(g) Petroleum oil.—The oil in use in the manufacture of asphalt cement shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until the oil has the following characteristics: Free from water and foreign matter; flash point not less than 300° F.; distillate at 400° for 18 hours, less than 10 per cent. The flash point shall be taken in a New York State closed oil tester.

The distillate shall be made with about 50 grams of oil in a small glass retort provided with a thermometer and placed in copper holder. The residue in the retort,

after distilling, must be fluid at 75° F. and not coarsely crystalline on cooling.

Any other softening agents approved by the engineer commissioner may be used

in place of petroleum oil.

(h) Asphaltic cement.—The asphalt cement must be of refined asphalt, fluxed when necessary with petroleum residuum, asphaltic oil, refined maltha, or other approved flux. The cement must be practically free from water and must be within the range of 40 and 70 penetration when tested at 77° F. on Dow penetration machine with No. 2 needle, 100 grams, 5 seconds. The degree of penetration to be fixed by the engineer commissioner.

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Preference will be given to an asphalt cement that is not readily affected by the action of water, provided it is satisfactory in other respects. If an asphalt cement is accepted that is affected by water, some provision satisfactory to the engineer commissioner must be made to guard against the results of such action, and such work must be included in the price bid. The use of an asphalt under these specifications shall be subject to the approval of the engineer commissioner, and if an asphalt has been proposed for use by the contractor and approved by the engineer commissioner no change in the asphalt to be used shall be made unless with the approval of the engineer commissioner. If an asphalt or flux is submitted for use which has not been successfully used for a period of at least two years for paving under conditions similar to those existing in the District of Columbia, its use may be limited to such extent as may be deemed advisable, or it may be rejected for use entirely in the discretion of the engineer commissioner.

The bitumen of the asphalt cement must comply with the following tests:

(1) It must be of such consistency that when tested at 32° F. it will not show a hardness below 10 penetration, and when tested at 115° F. it will not be softer than 350 penetration.

(2) When a briquet of the bitumen having a minimum cross section of one square centimeter, having a penetration of 50°-53° at 77° F. is tested for ductility at 77° F. the bitumen must stretch at the rate of 5 centimeters per minute to a distance of 20 centimeters before breaking

centimeters before breaking.

(3) When the bitumen is heated in an open tin box ‡ inch deep by 2½ inches in diameter at a temperature of 300° F. for 18 hours in a hot-air oven it must not show a loss by volatilization of over 5 per cent, and it must not have been hardened over

50 per cent by this heating.

The asphalt cement must never be heated to a temperature that will injure it. When the asphalt cement contains over 5 per cent of material that will separate by subsidence while in a molten condition it must be thoroughly agitated before drawing from storage and while in use in the supply kettles so as to insure a uniform cement.

These properties shall be determined by tests made by uniform methods, descrip-

tions of which are on file in the office of the engineer commissioner.

(i) Asphaltic concrete paving mixture.—The materials complying with the above specifications shall be mixed in proportions by volume depending upon their character and the traffic on the street and upon the character of the asphalt, and will be determined by the engineer commissioner, but the percentage of bitumen in any mixture soluble in carbon bisulphid shall not exceed the limits 7 to 9 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned; its use will not be permitted; and if already placed on the streets, it must be removed and replaced by proper materials at the expense of the contractor.

(j) Laying asphaltic concrete surface.—The stone and paving cement shall be heated by machinery. The proportion of paving cement shall be sufficient to thoroughly coat each particle of the aggregate, and the entire mixture shall be subject to the approval of the engineer. The mixture will be hauled while hot to the site of the work and shall be covered until deposited on the street. The temperature at the time of dumping shall not be less than 220°. The hot mixture shall be evenly spread with hot tools upon the base to such a thickness as will make a layer 2 inches in thickness after rolling. It shall then be rolled with a steam roller weighing not less than I ton per foot of tread of roller, until no further compression occurs. After the rolling of the asphaltic concrete wearing surface has been completed there shall be spread over such surface a thin coating of asphaltic cement as used in surface not to exceed on an average a quarter of a gallon to the square yard, of such consistency as shall be approved, which shall be thoroughly brushed into the wearing surface so as to fill all voids and smooth out any minor unevenness of the said surface. There shall then be spread over and rolled into this flush coat a thin layer of trap screenings, so far as practicable devoid of dust, in size from three-eighths inch down, whose use shall be to the end of securing a gritty, no-slippery surface. The finished surface shall be free from lumps or depressions and shall be true to the required cross section. The street to be barricaded. Barricades to remain for such length of time as deemed necessary by the engineer commissioner.

11. Asphaltic concrete on broken-stone base.—A surface coat of asphaltic concrete complying in all respects to the specifications for asphaltic concrete on concrete base is to be laid on a base of broken stone or gravel. The base will be futnished by the District of Columbia, in place and rolled, ready for surfacing. The price bid will include supplying, mixing, placing, and rolling the asphaltic concrete surface.

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12. Resurfacing over asphalt and coal-tar pavements.—The foregoing specifications shall also apply, as far as practicable, to all work of resurfacing. Where the binder coat can not be made of uniform thickness it will be paid for by the cubic foot.

13. Ordinary repairs.—Should the commissioners exercise their right under paragraph 1 of these specifications to require minor repairs and miscellaneous work to be done by this contractor, the same will include the repairing of all asphalt and coal-tar pavements where defective, due to wear or accident, the repairs of all cuts such as those made for tapping sewers, water pipes, etc., and generally all patching and miscellaneous work necessary to keep the pavements in good condition for travel during the contract period.

(a) The repairs shall be made at such times and places and in such manner as may be directed, and when deemed necessary on certain streets, between the hours of 8 p. m. and 8 a. m. All old material shall be cut out and removed at the contractor's expense, and in the case of undercuts any overhanging portion shall be removed.

(b) Except in special cases the base of the pavement over all cuts will be laid by the District, and the surface and binder only by the contractor. The engineer commissioner may, however, call upon the contractor to lay the base wherever he may deem it advisable.

(c) The holes cut out shall be cleaned and the edges painted with hot paying coment

of such quality as may be acceptable to the engineer commissioner.

(d) Barricades of a suitable form to prevent traffic over recently laid work shall be provided and kept in place until the surface has hardened sufficiently to withstand pressure. These barricades and their use must be subject to the approval of the engineer commissioner.

(e) Work in repairing over plumber, electric-light, and similar cuts will be done

immediately on receipt of written order from the engineer commissioner.

(f) Any work of repairs to pavement for which street railway companies are responsible, and which may be ordered under this contract by the proper authority, shall conform to these specifications, and be paid for at the prices named in items 6 and 7 of the contract prices herein. In case any railway company shall fail or refuse to pay the sum due from said company in respect of work done by or under the orders of the proper officials of the District of Columbia, certificate of indebtedness against said railway company will be issued to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said company in accordance with existing laws.

14. Measurement.—Asphalt top and asphalt binder specified herein to be paid for by the cubic foot shall be measured on the basis of the box or measure used at the plant for measuring the sand in the case of top mixture, and the stone in the case of binder mixture. In the case of asphalt-top mixture the actual net contents of the box as filled with sand will determine the amount of resultant top mixture to be paid for, and in the case of binder stone 92 per cent of the actual net contents of the box as filled with binder stone will determine the amount of resultant binder to be

paid for, and payments on these bases will be made.

15. Additional work.—The following specifications will cover incidental work which may be required of the contractor in connection with the work of renewal,

resurfacing, and repairs:

(a) Laying vitrified block.—Vitrified block gutters will ordinarily be 18 inches wide, laid on a concrete base 6 inches in depth, of the same material and proportions and laid in the same manner as prescribed in these specifications for the concrete base

under asphalt pavements.

As soon as practicable after the concrete base has been laid, a dry mixture, composed of 4 parts of the sand specified in paragraph 6b and 1 part of Portland cement, thoroughly mixed, will be spread thereon, as a bed for the paving blocks, to the depth of not less than one-half inch, and regulated so as to be exactly parallel to the finished grade of the gutter.

On the bed thus prepared for them the blocks will be set on edge, with the longest

dimensions at right angles to the curb, or as directed by the engineer.

The longitudinal joints of each course of blocks laid must be broken by a lap of

not less than 4 inches.

The blocks will then be carefully rammed by placing a plank over several courses and ramming the plank with a heavy rammer. The ramming will be continued until the blocks reach a firm. unyielding bed and present a uniform surface, with proper grade. Any lack of uniformity in the surface or defect in the grade must be corrected by taking up and relaying the blocks.

After proper ramming the entire gutter will be thoroughly grouted with a thin,

easily flowing grout of neat Portland cement.



A similar construction of block to that described for the gutters may be used adjacent to railroad tracks; the base will in that case extend to the bottom of the cross-ties, or at least 6 inches thick.

The blocks will be furnished the contractor at the District property yards, and must

be hauled to the work at his expense.

(b) Setting 6 by 20 inch granite and bluestone curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 24 inches below the top of the curb when set, and 20 inches wide, will be excavated to receive the curb and its gravel bed; the dimensions of the trench, in width, will be 14 inches from the curb line toward the building line of the street, and 6 inches from said curb line toward the center line of the street. In the trench thus prepared the curb will be set, and brought to line and grade, with plumb face. Spalls of stone, hard burned brick, or other acceptable substance, prepared for the purpose, will be used to adjust the curb to grade, and these spalls will be so placed and adjusted as to support the curbing permanently and afford a firm and stable support for it without the use of small chips and fragments used as "shimming" pieces to wedge the stone in place. After the curb has been properly placed and adjusted to line and grade the trench will be filled with gravel of approved quality to within 8 inches of the top of the curb, the filling to be done in layers of not more than 3 inches in depth and thoroughly compacted by suitable ramming. Close contact joints and even surfaces must be made and the lines and grades furnished strictly followed.

(c) Setting 8 by 8 inch granite curb.—This curb will be set in the following manner: A trench parallel to the curb line, having a depth of 15 inches below the top of the curb when set and 18 inches wide, will be excavated to receive the concrete and the The dimensions of the trench in width will be 14 inches from the curb line toward the building and 4 inches from the curb line toward the center line of the street. In the trench thus prepared a bed of concrete, composed of 1 part of Portland cement, 4 parts of clean concrete sand, and 10 parts of screened pebbles, will be laid, filling the trench to a depth of 5 inches, the material to be mixed and laid under the same conditions as prescribed for laying cement concrete base for sheet asphalt pave-On the base prepared and laid as above the curb will be placed before the concrete has set and adjusted to line and grade by setting it to a firm, unyielding bearing in a bed of freshly made concrete by the use of heavy wooden mauls. The face of the curb must be plumb and true to line and the top of it carefully set to grade with close and even contact joints. After the curb has been set to line and grade the trench on the footwalk side will be immediately filled with concrete to within 5 inches of the top of the curb, which will be thoroughly rammed and compacted, after which it will immediately be covered with earth to prevent injury to it through too rapid evaporation, etc. In case vitrified-block gutters are to be laid in front of the curb any portion of the concrete base of the curb that would interfere with the laying of such gutters must be removed immediately after the curb is set.

(d) Resetting 6 by 20 inch granite and bluestone curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work. Under this classification also the curb may be adjusted to line and grade without removing it from its trench if so ordered by the

engineer.

(e) Resetting 8 by 8 inch granite curb.—The work to be done under this classification is identical with that specified for setting this class of curb, except that no hauling of the curb is required other than that incidental to the necessary disposition of it upon the line of the work, and no new concrete is required other than that sufficient to

embed the stone and back and adjust it to line and grade.

(f) General instructions.—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as determined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or reset the curb. the portion so disturbed shall be repaved, if required by the engineer, without cost

to the District.

16. Prices for additional work.—Contractors must do such additional work incident to the construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifica-Prices paid for this work will be as stated below:

1) Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot.

2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile.

(3) Hauling from District property yard and setting 6 by 20 inch curb, 25 cents per linear foot.

- (4) Resetting 6 by 20 inch granite and bluestone curb, 25 cents per linear foot.
  (5) Hauling from District property yard and setting 8 by 8 inch curb, 35 cents per linear foot.
  - (6) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.

7) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot. (8) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-

up labor, 65 cents per hour.

(9) Removing old rubble, cobble, flagging stone, and brick, vitrified block or brick etc., including haul not to exceed 2 miles, 15 cents per square yard.

(10) Removing old asphalt blocks, including haul not to exceed 2 miles, 20 cents

per square yard.

(11) Removing old granite block, including haul not to exceed 2 miles, and removal of old paying bed and cleaning concrete base where same exists, 25 cents per square

(12) Overhaul on items 9, 10, and 11, 1 cent per square yard per quarter mile or

fraction thereof.

- (13) Removing old coal-tar or asphalt surface and binder from concrete base in connection with resurfacing work, including haul, 12 cents per square yard.

  (14) Grading and hauling earth not to exceed 1,000 feet, 55 cents per cubic yard.

  (15) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard.
- 16 Removing old coal-tar and bituminous pavement or base of the class laid since 1880 and hauling not to exceed 1,000 feet, \$1 per cubic yard.

(17) Removing old coal-tar and bituminous pavement or base of the class laid prior to 1880 and hauling same not to exceed 1,000 feet, \$1.85 per cubic yard.

(18) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per

cubic yard. (19) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic

yard. (20) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30

- per square yard.

  (21) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square yard.
- (22) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.
  - (23) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.
    (24) Laying and relaying granite block, 75 cents per square yard.
    (25) Relaying cobble and rubble, 30 cents per square yard.
    (26) Repairing cement walks, \$1.50 per square yard.
    (27) Repairing brick walks, 25 cents per square yard.

- 28) Laying asphaltic or broken stone base in place, \$3 per cubic yard. 29) Laying Portland cement concrete base in place, \$5 per cubic yard. 30) Adjusting manhole tops and basin covers to grade, \$1.50 cents each.
- Adjusting water-valve casings to grade, \$3 each.
- (32) Adjusting electric-light or telephone manhole tops to grade, as follows:

(a) Size 14 by 18 inches, \$1 each. (b) Size 36 by 36 inches, \$1.50 each.

(c) Size 6 by 6 feet, \$4 each.

17. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer, and for this he will be paid at current rates for work of a similar character; or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer plus 15 per cent of said cost.

The contractor shall have no claim for compensation for extra work unless same is ordered in writing by the engineer. All additional and extra work shall conform to

current District of Columbia specifications therefor.

18. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its completion as indicated on the final voucher for each street. Ten per cent of the cost of this work will be retained and disposed of as provided for by law. No retent will be held on ordinary repairs (minor repairs), or on the cost of grading, the removal of old materials and of the overhaul on the same, and of stone cutting.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1904, then the contractor shall, on demand of the commissioners, remove such defective pavements and relay them with new material of approved quality. The engineer commissioner shall decide the question

of inferiority.

On expiration of guarantee for maintenance the work is to be inspected, and all imperfections must be corrected where and to such extent as the engineer shall direct, upon which the engineer will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guarantee period will be made by the contractor when ordered by the engineer

commissioner.

19. Retain fund.—The retain fund shall be subject to the control of the commissioners of the District of Columbia for the purpose of maintaining the work in repair and making good any defects discovered during the period specified. In the event of the contractor failing to make such necessary repairs after notice to do so, the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

20. Cuts.—Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the

work is begun.

21. Modification.—The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modifications will be determined by the engineer commissioner on the same basis as in the case of extra work.

## SPECIFICATIONS FOR LAYING CEMENT SIDEWALKS.

1. Classes A and B.—Work under class A will consist of all large work located on streets, avenues, places, etc., within the limits of the city of Washington (including Georgetown or West Washington) and all work on streets, avenues, places, etc., beyond said limits where the roadways are paved. Work under class B will consist of all large work located on streets, avenues, places, etc., outside the limits of the city of Washington, as above, where the roadways are not paved and of all small work wherever located. For classification for purposes of payment under this contract any item of work which exceeds 100 square yards will be rated and paid for as "large work," items of 100 square yards or less being rated as "small work." The aggregate of the item will be the determining consideration since it may consist of two or more detached pieces in the same vicinity. Any questions as to the classification under this paragraph will be decided by the engineer commissioner.

2. Grading.—The contractor is to make such cutting and filling as may be necessary to bring the foundation, when compacted, to the level of 5 inches below the surface of the finished pavement. Grading, either cut or fill, to the needed depth, not exceeding 1 foot on the average for each separate piece of work, and including the area of tree spaces, either continuous or interrupted, must be dome without additional or extra charge, inclusive of removal and haul to designated property yard of all sidewalk material between the curb line and the back of the new work, whether the old sidewalk

is wholly replaced by the new cement part or not.

Grading in excess of the 1 foot average depth will be paid for as additional work at

prices stated herein.

Material for filling must be suitable for the purpose and satisfactory to the engineer, and must be placed in layers and compacted for making good foundation, as required by him.

In case of excavation any unsuitable or objectionable material in the bed, as determined by the engineer, is to be wholly removed and the spaces filled with broken stone or other suitable material satisfactory to him.

The contractor is to trim the bed so as to make it parallel to the surface of the finished pavement and thoroughly compact the bed by rolling or ramming without extra pay.

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On the bed thus prepared will be laid, after compacting, 4 inches of cement concrete and 1 inch of cement mortar covered by a thin, dry surface coat, all made of the

materials and in the manner hereafter described.

3. Cement.—All cement required by these specifications to be used in the work will be furnished to the contractor by the District at its warehouse, Fourteenth and D Streets SW., and charged to the contractor at the rate of \$1.25 per barrel, to be deducted from any moneys found due to said contractor by the District. The cement after issue or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which, in the opinion of the engineer commissioner, has been injured by age or exposure. All cement sacks are to be returned by the contractor, and for those not returned or not in good condition a charge of 11 cents per sack will be made.

4. Sand.—The sand used shall be clean and sharp, from fine to coarse, free from sewerage, mud, clay, mica, paper, leaves, chips, and other foreign matter, but may show when shaken with water and after subsistence not more than three per cent by volume of silt or loam. Sand used for surface layer must be screened on line of work; screen to be used for this purpose to be designated by the engineer. Sand stored at the work shall, when required, be dumped on board or other suitable platform and

kept as clean as when delivered.

5. Gravel.—The gravel shall be from small to medium size and as good in quality as the best Potomac River washed gravel. The gravel shall be free from dust, dirt, chips, leaves, and other foreign or objectionable matter, and when required shall be

dumped on boards and cared for as provided for sand in the preceding paragraph.

6. Mortar and concrete.—The mortar shall be composed of the cement and sand in the proportion of 1 to 2 by volume, thoroughly mixed dry. A sufficient quantity of water will be added afterwards by fine sprinkling to form, upon remixing, a stiff plastic paste. The proportions are intended to secure a mortar in which every particle of sand is enveloped by cement and all voids in the gravel filled with mortar, and this result must be obtained to the satisfaction of the engineer. If the mixing be by hand it shall be done on a water-tight platform with tight raised edges and the cement spread first. No batch shall contain more than one barrel of cement.

The mixing shall be done by the use of shovels, hose, and rakes until a thoroughly uniform mortar of proper consistency as above described is secured.

7. Concrete.—To the mortar, made as above directed, shall be added 5 parts by volume of the specified gravel which shall have been thoroughly drenched with water just before it is added to the mortar. The drenching shall not be done in the barrow, nor otherwise to permit the addition of free water to the mortar. Each batch of concrete shall be thoroughly mixed until each piece of gravel is wholly coated with mortar and in a manner satisfactory to the engineer. If the mixing be by hand, it shall be done on a water-tight platform, with tight raised edges, and in the mixing the gravel shall be first spread over the mortar. The concrete immediately after mixing will be spread upon the foundation so that the mortar shall remain evenly incorporated with the gravel and then thoroughly compacted by ramming. The slab or flag divisions are then to be marked off to the size and markings cut 3 inches deep. The space made by the cutting tool shall be immediately filled with dry sand and well rammed. Should the contractor so desire he will be permitted to substitute broken stone for the gravel used in concrete. Such stone should be hard, durable, and properly broken to a size small enough to pass through a ring 2 inches in diameter and may be the run of the crusher, containing not over 1 per cent of material passing a No. 70 It shall be free from foreign substances as provided for gravel.

8. Mortar and surface.—Mortar for the surface layer shall be made of the specified cement and sand, mixed in the manner as for mortar for concrete, but in the proportion of 2 to 3, by volume. The mortar shall be spread while fresh upon the concrete base while the latter is still soft and adhesive and before it shall have reached its first set in such quantity that after thorough manipulation it shall be I inch in thickness. It is then to be leveled off and beaten with wooden battens, so as to break any air cells and make the surfacing perfectly solid and at the true grade. No pavement marked by sand which has been spread over it for protection will be accepted.

9. Dry coat.—A coating of dry cement and fine sand in equal proportions, by volume, and such part and kind of coloring matter as the engineer may direct, thoroughly mixed, is then to be floated into the layer, and by a skillful use of tools the surface is to be made smooth. The joints of the blocks will then be made to a depth of one-half inch immediately over the joints in the concrete base and the blocks brought to a true line and grade and finished to the satisfaction of the engineer. The finish of the blocks may, excepting margins about 1 inch in width, be made with a toothed roller to make a surface that will not be slippery or may be made perfectly plain and smooth by the use of trowels or may be brush finished. The decision as to the finish to be used will be made by the engineer.

Any lack of compaction between the concrete and mortar layers shall be sufficient reason for requiring entire removal and the substitution of new and satisfactory work.

10. Protection of work.—The pavement is to be kept moist, protected against the weather, and guarded against foot travel until it has set. Care shall be taken at all times not to interfere with business or travel more than is absolutely necessary for faithful execution of the work. Free ingress and egress from the street to entrances to premises fronting on the sidewalk shall be provided for at all times; and during the time that travel is closed the contractor shall provide a temporary walk and keep it in good condition, safe for pedestrians and easy of access from adjoining walks or The contractor will not be allowed to obstruct private driveways or approaches, or to dig up or occupy the streets by material more than is absolutely necessary for the prosecution of the work. Special care will be taken to inconvenience the public as little as possible. The contractor will be held responsible for all injury done to the work in any way until it has been accepted and measured by the engineer.

11. Driveways.—Driveways shall be laid the same as sidewalks, except that the surface shall be divided into small squares as in K Street NW., near Connecticut Avenue.

The plan of driveways shall be as directed by the engineer.

12. Tree spaces.—Tree spaces will be left as directed. These spaces and also other

edges of the work not abutting against curb, poles, or straight lines of parking, terrace,

or coping, will be outlined by planed boards of sound pine, 5 inches deep, set on edge to true line, and with top edge even with the pavement surface.

The edges of the new pavement not joining a curb or coping are to be clearly cut down on a true line 1 inch below the finished surface.

The edges adjacent to inter-

rupted tree spaces are to be plaster finished. The area of the tree space, either continuous or interrupted, is to be filled with earth up to the level of the pavement.

13. Plumbing.—All preliminary plumbing work will be done by the District. The contractor will be held responsible for all plumbing appurtenances within the limits of the finished sidewalk being at its grade, and for any damage or obstruction thereto

due to his operation.

 Cleaning work.—Before acceptance of the work it will be cleaned and all débris and unused material removed. No crumbling or uneven edges of the sidewalk will be allowed to remain. Pine strips at edges of concrete will not be removed before 48 hours after the pavement is laid, or a longer period if the condition of the pavement,

in the judgment of the engineer, requires it.

15. Inspection of work.—The engineer will appoint an inspector to see that each piece of work, including curb work, is graded and laid according to specifications and directions. The District will not pay for any work done during the absence of the

inspector.

16. General instructions.—All curb will be furnished to the contractor at the District property yard, and will be hauled by him to the site of the work; any curbing unaccounted for, or improperly disposed of, or damaged, or broken, through careless or unskilled handling, will be charged against him, and the value of the loss to the District will be deducted from any amount due the contractor for work done, as deter-

mined by the engineer.

All expenses connected with or incidental to the work of setting or resetting curb, as described above, including the hauling of the curbing, preparing the curb trenches, and the necessary grading connected therewith, furnishing gravel and spalls, furnishing and placing concrete, and all other material and labor necessary to execute the work in accordance with the specifications therefor, are included in the fixed price for the respective items as hereinafter stated. The cost of dressing, jointing, or cutting the curb will be paid for additionally, but no other claim for additional compensation will be entertained.

Should the adjoining brick footwalks be disturbed in order to set or rest the curb, the portion so disturbed shall be repayed, if required by the engineer, without cost

to the District.

17. Additional work.—Contractors must do such additional work incident to construction of new pavements as may be ordered on each street by the engineer commissioner. All such work shall be in accordance with current District specifications. Prices paid for this work will be as stated below:

Removing old curb, including haul not to exceed 2 miles, 8 cents per linear foot. (2) Hauling same beyond distance of 2 miles, 1 cent per linear foot per mile or frac-

tion thereof.

(3) Hauling from District property yard and setting 6 by 20 inch curb, class A, 25 cents per linear foot.

(4) Hauling from District property yard and setting 6 by 20 inch curb, class B,

28 cents per linear foot. (5) Resetting 6 by 20 inch and bluestone curb, 25 cents per linear foot.

(6) Realigning 6 by 20 inch and bluestone curb, 15 cents per linear foot.

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(7) Hauling from District property yard and setting 8 by 8 inch curb, class A. 35 cents per linear foot.

(8) Hauling from District property yard and setting 8 by 8 inch curb, class B, 38

cents per linear foot.

(9) Resetting 8 by 8 inch curb on new concrete base, 31 cents per linear foot.
(10) Resetting 8 by 8 inch curb on old concrete base, 15 cents per linear foot.

(11) Dressing, jointing, and cutting curb, etc. (stonecutters' time), including setting-up labor, 65 cents per hour.

(12) Removing old rubble, cobble, flagging stone and brick, asphalt block, vitrified block or brick, etc., including haul not to exceed 2 miles, 15 cents per square yard. (13) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter mile or fraction thereof.

(14) Removing old granite block, including haul not to exceed 2 miles, and removal of old paving bed and cleaning concrete base where same exists, 25 cents per square

15) Hauling same beyond distance of 2 miles, 1 cent per square yard per quarter

mile or fraction thereof.

(16) Grading and hauling earth, not to exceed 1,000 feet, 55 cents per cubic yard.

(17) Grading and hauling macadam not to exceed 1,000 feet, 55 cents per cubic yard. (18) Removing old coal-tar and bituminous pavement or base and hauling not to exceed 1,000 feet, \$1 per cubic yard.

(19) Removing old concrete base and hauling not to exceed 1,000 feet, \$1.50 per

cubic yard.

(20) Hauling excavated material, per 100 feet, over first 1,000 feet, 1 cent per cubic vard.

(21) Laying new or old vitrified brick or block on new 6-inch concrete base, \$1.30

per square yard.

- (22) Laying or relaying vitrified brick or block on old concrete base, 60 cents per square vard.
- (23) Laying and relaying asphalt block and vitrified brick or block on gravel base, 40 cents per square yard.

(24) Cleaning old vitrified brick or block for relaying, 25 cents per square yard.

(25) Laying and relaying granite block, 75 cents per square yard.
(26) Relaying cobble and rubble, 30 cents per square yard.
(27) Repairing brick walks, 25 cents per square yard.

28) Laying asphaltic or broken stone base in place, \$3 per cubic yard. (29) Laying Portland cement concrete base in place, \$5 per cubic yard. (30) Adjusting manhole tops and basin covers to grade, \$1.50 each.

31) Adjusting water-valve casings to grade, \$3 each.

(32) Adjusting electric-light or telephone manhole tops to grade, as follows:

(a) Size, 14 by 18 inches, \$1 each. (b) Size, 36 by 36 inches, \$1.50 each.

c) Size, 6 by 6 feet, \$4 each.

(d) Size, 6 by 6 feet manholes, with 36 by 36 inch covers set on "I" beams in concrete, \$7 each.

The work of repairing cuts in cement walks, which has in recent years been done under these specifications, will be otherwise arranged for and will not be done by this contractor.

The repaying of all roadway pavements necessarily disturbed in setting or resetting curb will be done by the District without cost to the contractor.

The setting and resetting of the curb shall be done according to current District of Columbia specifications for such work.

The old curb may be removed and reset to grade and line, or the old curb may be realigned without removing it from place, as required by the engineer.

18. Existing brick walks abutting the ends of new cement walks are to be relaid, if necessary, without cost to the District in such manner as to make them conform to

the grade, etc., of the new walks in a manner satisfactory to the engineer.

(19) Amount of work.—The work to be done under this contract consists in laying cement sidewalks in such places and in such order as may be directed by the commissioners under appropriations for the fiscal year ending June 30, 1916, except as related below. The amount of work to be done under this contract can not be stated with any precision, but as an indication of what is anticipated the amount of the contractor's bond will be determined on the basis of 70,000 square yards. No guarantee is given that the quantity here stated will be equalled or may not be exceeded. The bids will be classified and award of contract based on 40,000 square yards of class A, and 30,000 square yards of class B.

This contract will not include such public sidewalk construction, which on account of its urgency may be laid by private parties under permit or by the District's day

labor organization.
(20) Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer arising out of any modification of these specifications that may appear necessary, and for this he will be paid at current rates for work of similar character or, if the extra work should be of a class for which rate is not fixed by current contracts, the actual reasonable costs to the contractor, as determined by the engineer, plus 15 per cent, the contractor shall have no claim for compensation for extra work unless the same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia specifications therefor.

21. Guaranty.—All work under this contract (except as herein stated) will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. This date shall be the date of the final voucher for each street hereunder. Ten per cent of the cost of this work will be retained and disposed of as provided by law. No retent will be held on the cost of grading or the removal of old materials, and of the overhaul

on the same and of stone cutting.

On expiration of guaranty for maintenance the work is to be inspected, and all imperfections, depressions, and unevenness of surface, alignment and grade of curbs, sidewalks, etc., must be corrected where and to such an extent as the engineer commissioner shall direct, upon which the engineer commissioner will accept the same in writing, and until such acceptance the guaranty shall be in force. Repairs that may become necessary during the guaranty period will be made by the contractor when ordered by the engineer.

22. Retain fund.—The retain fund shall be subject to the control of the Commissioners of the District of Columbia for the purposes provided by law and for the purpose of maintaining the work in repair and making good any defects discovered during the

period specified.

In the event of the contractor failing to make such necessary repairs after notice to do so, the commissioners may cause such work to be done and deduct the cost of the same from the retain fund, and, in their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

23. Site of work.—The bidder is expected to examine the site of work before bidding. as no allowance will be made for any additional difficulties which may arise, either

affecting the original construction or maintenance of the finished work

24. Certificates of indebtedness against street railway companies will be given to the contractor for all work done and all materials furnished by him for the space which must be paved and kept in repair at the expense of said companies in accordance with existing laws.

25. Contractors shall be responsible for any work done upon any street over plumbers' cuts or other work done by the permission of the commissioners before the work is

26. The commissioners reserve the right to modify these specifications as may from time to time seem desirable. The amount of compensation, if any, due the contractor for said modification will be determined by the engineer commissioner on the same basis as in the case of extra work.

## GENERAL STIPULATIONS.

These stipulations are part of the specifications.

1. Bond.—Good and sufficient bond in the penal sum equal to at least 25 per cent of the estimated amount of the contract, with sureties or a surety company satisfactory to the commissioners, will be required from all contractors, guaranteeing that their contract will be faithfully performed: that the contractor or contractors will be responsible for all claims for damages to persons, property, or premises arising out of his or their operations prior to the acceptance of the finished work, and that he or they will promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in the contract. In the event that the sureties or surety company become unsatisfactory to the said commissioners, they may, in their discretion, require from the contractor an additional or new bond, in the same or a lesser penal sum, with sureties or a surety company satisfactory to them and to be conditioned as above required.

Upon the failure to furnish such additional or new bond within 30 days after written notice so to do, all payments under this contract will be withheld until such additional

or new bond is furnished.

2. Transfers.—No contract or any interest therein shall be transferred by the parties to whom the award is made: such transfers will be null and void, and will cause the contract to be annulled and the work to be given to other parties under the conditions

mentioned herein.

3. Patents.—The District of Columbia assumes all responsibility under this specification and contract as to any claim which may be made that any process described in these specifications is an infringement of any patent covering pavement construction, and will defend and save harmless the contractor as to any such claim or the defense thereof in the courts: Provided, however, That the District of Columbia shall not be liable for claims for damages or anticipated profits preferred by the contractor on account of delay, interruption, or abandonment of the work occasioned by or resulting from such claim of infringement as is above referred to. The contractor, however, will be required to hold the District of Columbia harmless against all or any claims for the use of any patented article, appliance, or process in connection with the contract herein contemplated except as related above.

4. Contractor's risk.—All loss or damage due to negligence, or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the

elements, will be sustained by the contractor.

5. Employees.—The contractor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer. He shall so conduct his operations as to interfere with the work of other District contractors as little as possible. The foremen, mechanics, and others employed by the contractor shall be skilled in the several parts which are given them to do

An employee or agent of the contractor who shall use profane or abusive language to the inspector, or otherwise impede or embarrass him in the performance of his duty, or who, in the opinion of the engineer, is careless or incompetent, or obstructs the progress of the work, or disobeys or evades the instructions given by the engineer, shall be immediately discharged and not again employed without the consent of the engineer.

6. Weather.—The contractor shall suspend all work under the contract when notified

by the engineer that the weather is unsuitable for carrying it on.

If the work is allowed during cold or freezing weather, the contractor shall take such additional precautions as the engineer shall require, without additional expense; and under no circumstances shall materials be used which have been injured by the weather.

Inspection.—Inspectors may be appointed who shall have access to all parts of the work at all times and whose duty it shall be to point out to the contractor any neglect or disregard of the specifications of contract; but the right of final rejection of the work will not be waived at any time. Upon all technical questions concerning the execution of the work, in accordance with the specifications and measurements thereof, the decision of the engineer shall be final. Ordinarily, one inspector will be employed by the District of Columbia for each section of the work under contract; but if, on account of any apparent disregard of the specifications, additional inspectors shall be required, they will be employed by the District of Columbia, at the rate not to exceed \$6 per diem each, and the cost of same will be charged to the contractor.

8. Condemned work.—All materials furnished and work done not in accordance with these specifications shall be removed within 24 hours after written notice from the engineer by and at the expense of the contractor, or, in case of failure to do so, it shall be removed by the District of Columbia and the cost thereof charged to the contractor and deducted from the amount due or which may become due him. None but the best material of the several descriptions shall be used.

9. District material.—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the contractor. The contractor will be held responsible for all materials delivered to him upon requisition, and shall be charged for all materials delivered upon said requisition. Should the amount of materials actually delivered to the contractor exceed the amount used upon the work, or otherwise accounted for, the cost to the District of the difference must be made good by the contractor and will be deducted from any moneys which may be due him.

Any material that is the property of the District that is not accounted for by the contractor to the satisfaction of the engineer, will be charged against the contractor

at the contract price for similar material.

 Failure.—If the contractor shall delay or fail to commence with the delivery of the material or the performance of the work as specified herein, or shall, in the judgment of the Commissioners of the District of Columbia, fail to prosecute faithfully and diligently the work in accordance with the specifications and requirements

of this contract, then, in either case, the said commissioners shall have the power to annul this contract by giving notice in writing to that effect to the contractor, and upon the giving of such notice all payments to the contractor under this contract shall cease, and all money or reserved percentage due or to become due thereunder shall be retained by the said commisioners until the final completion and acceptance of the work herein stipulated to be done; and the said commissioners shall have the right to recover from the contractor whatever sums may be expended by the District of Columbia in completing the said contract in excess of the price herein stipulated to be paid the contractor for completing the same, and also all costs of inspection and superintendence, including all necessary traveling expenses connected therewith, incurred by the said District of Columbia, in excess of those payable by the said District of Columbia during the period herein allowed for the completion of the contract by the contractor; and the said commissioners may deduct all the above-mentioned sums out of or from the money or reserved percentage retained as aforesaid; and upon the giving of the said notice, the said commissioners shall be authorized to proceed to secure the performance of the work or delivery of the materials, by by contract or otherwise, in accordance with law.

11. Payment.—Payments will be made monthly, provided the progress of the work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested as hereinbefore

12. Conveniences.—The contractor shall provide, for use of the District inspectors stationed at cement warehouses, suitable office with such plain furniture as may be necessary for the proper transaction of their business as agents for the District. They shall also furnish, when needed for use of laborers on line of work, necessary toilet conveniences secluded from public observation.

13. Cleaning up.—On the completion of work it shall be thoroughly cleaned before it will be accepted.

14. Lines.—All necessary lines and levels will be given by the engineer by means of suitable marks, and in establishing them the contractor shall provide such materials and assistance as may be required by the engineer. All marks given are to be carefully preserved and if destroyed through carelessness the cost of replacing them shall be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

15. All loss or damage due to negligence or arising out of the nature of the work to be done, or from any unforseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, will

be sustained by the contractors.

16. Interpretation.—Any doubt as to the meaning of these specifications will be explained by the engineer, who shall have the right to correct any errors or omission in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "commissioners" is used in these specifications, it is understood to designate the Commissioners of the District of Columbia. Whenever the word "engineer" is used, it is understood to designate the Engineer Commissioner of the District of Columbia, or in his absence, his duly authorized assistants, assistant engineers, and inspectors representing him, limited by the special duties intrusted to them.

# SPECIFICATIONS FOR TRUNK SEWER.

#### 1. Location.

2. Bids.—The contractor shall, for the price or prices bid, do all the work prescribed in these specifications; make the requisite excavations for building the sewer and the appertaining structures and connections; shall do all ditching, diking, pumping, bailing, and draining, all sheeting, bracing, and shoring; shall make all provisions necessary to maintain and protect adjacent buildings, fences, trees, gas pipes, water courses, conduits, culverts, sewers, railways, electric lines and other structures, and shall repair all damages to the same which may result from his operations; shall provide all bridges fonces or other means of maintaining and protecting travel as interest. vide all bridges, fences, or other means of maintaining and protecting travel on intercepted streets, roads, and railroads, and on streets or roads in which the trenches are excavated, after giving due notice to parties affected thereby; shall maintain the same in good and safe condition so long as may be necessary, and shall then remove such temporary expedients and restore such ways to their proper condition; shall provide watchmen, red lights, fences, and all other precautionary measures necessary to the protection of persons and property; shall provide all necessary centers, molds, and forms; shall construct all foundations, all brick, concrete, stone, and timber work; shall set in place all ironwork, and refill all trenches; shall furnish all materials (except

those specially mentioned in paragraph 13), and all tools, implements, labor, and transportation required to build and put the sewer in complete working order; and shall do each and all to the satisfaction of the engineer.

The prices bid are to include the cost of the removal of and delay or damages occasioned by trees, roots, timber or masonry structures, or other obstacles (whether shown

on the plans or not) except rock.

For lumber left in trench no payment shall be allowed, unless the same shall be specifically directed by the engineer prior to the refilling of the trench. The contractor ordinarily will use his judgment about leaving bracing lumber in place, but shall be, in all cases, responsible for any injury which may result to the sewer or to adjacent pavements, structures, water, gas, or other conduits by the removal of bracing, sheeting, or shoring.

3. Drawings.—The drawings which illustrate the work to be performed and which show the location, shapes, dimensions, and materials of the sewer to be constructed are on file in the engineer department. All work executed under this contract must

conform with these drawings.

Should the position of pipes and other underground objects be found to differ from that indicated on the drawings, or if it shall be found necessary to modify the lines, grades, or positions, the contractor shall have no claim for extra compensation on that account.

4. Order of work.—The work shall be prosecuted in such order as the engineer shall direct. He shall determine whether the conditions are favorable for working, and may suspend the work or any portion of it whenever, in his opinion, the conditions are such as will not insure first-class construction.

5. Street occupancy and traffic.—The operations of the sewer contractor must be so conducted that traffic upon steam and street railways and ordinary street traffic may be maintained. All material excavated must be removed from the street or deposited

as back filling upon completed work.

6. Pavements.—All pavements disturbed in doing sewer work for the width of the trenches, as defined in section 8 of these specifications, will be relaid by the commissioners. The contractor shall, when so directed, haul all cobble, brick, block, and tile, taken up by him to the District property yard designated by the engineer, and take receipt therefor; the actual cost of hauling will be allowed. Macadam, hydraulic base, and sheet pavement material removed shall be piled in suitable places along the line of the work so as not to cause unnecessary obstruction of any kind, and during the progress of the work shall be guarded by the contractor against misappropriation. Whenever so ordered by the engineer the contractor shall haul this material to a property yard to be designated by the engineer. No paving material of any kind removed in making excavation shall be used or appropriated by the contractor without written permission from the engineer.

If any pavement be injured by the contractor outside the limits prescribed by the

If any pavement be injured by the contractor outside the limits prescribed by the trenches, the cost of restoring such excess shall be charged against him and deducted from any amount found due him. He will maintain the surface over the line of the trench up to the street grade, with the best material obtainable from the excavation, until such time as the pavement is relaid. The cost of subsequent repairs of all pavements relaid over or adjacent to sewer trenches on account of sewer work, or of any work made necessary, within the period of one year, for which the sewer and their appurtenances are guaranteed, by settlement of the back filling of the trenches will be charged against the 10 per cent retained and invested as provided in paragraph 9

of the instructions to bidders.

7. Private property.—Care shall be taken not to move, without the consent of the person owning or controlling them, any trees, fences, water or gas pipes, sewers, drains, conduits, poles or wires for electrical purposes, railways, or other structures, and in crossing or working near them they shall be sustained securely in place until the work is completed, and shall be so treated as to render their condition as efficient and permanent as before.

In sewer construction along a right of way through public or private property the contractor shall so conduct his work as not to damage said property, and so as to interfere with its ordinary use as little as possible; he shall, upon completion of the sewer, restore the surface as nearly as possible to the condition in which he found it. No material shall be used or removed from the premises without the consent of the

owner or responsible party in charge of the property.

8. Measurements.—Measurements of work shall be made as follows:

Length: The length of sewer paid for by length, and the length of excavation shall be the whole length of the completed sewer without deduction for the space occupied by manholes.



Width: The width of the trench at any cross section shall be considered as equal to the greatest horizontal diameter of the sewer at that cross section, including the walls thereof, with 9 inches added thereto.

Depth: The depth of any cross section shall be considered as equal to the mean

depth from the surface to the outside bottom of the sewer at that section.

In submitting proposals bidders will be guided by the profiles given upon the drawings. These are approximate and any variance therefrom shall not be the basis of any claim for compensation above that provided for in the contract rates.

9. Trenches.—The ground shall be excavated in open trenches to such width and depth as may be necessary for proper sewer construction. If, however, in the judgment of the engineer, it is deemed advisable, special permission may be given for the construction of portions of the work in tunnel, in which case excavation will be allowed as if construction were in open trench. But at any time during such construction the

engineer may direct the excavation to be made in open trench.

The portion of the trench below the springing line of the sewer shall be excavated to conform to the external form and dimensions of the same. If the character of the ground met with in excavating is such that the external form of the sewer can not be preserved, the excavation shall be made to conform as nearly as possible to the external shape and dimensions of the sewer, and the space between the external sewer lines and the bottom and sides of the excavation as made, for a width equal to the greatest outside horizontal diameter of the sewer, shall be filled with hydraulic cement, con-

crete, or brick masonry, as directed.

If the material found in the sewer trench be, in the opinion of the engineer, unsuitable for a foundation, upon receipt of a written order it shall be removed by the contractor to such depth and width as may be directed, and suitable materials shall be deposited in its place. This additional excavation and deposited material will be

paid for as extra work.

The utmost care shall be taken to spare the roots of shade trees and to protect trees and shrubbery in public parks adjacent to line of work from injury. Also care must be taken to avoid unnecessary damages to park surfaces and roadways during construction.

Whenever it is necessary to intercept work near, or in any way interfere with any public or house sewer, drain, pipe, catch basin, culvert, or similar structure, the contractor shall maintain the same in working order, and shall repair and make good

any damage done to or by any of them during the progress of the work.

During construction permission may be secured to substitute for any sewer in use which is affected by the work hereby contracted for, a drain upon an improved location of equal capacity and of substantial construction, subject in all particulars

to the approval of the engineer.

10. Rock.—Only such ledge or rock, as in the opinion of the engineer requires blasting for its removal, or bowlders of one-half cubic yard or more in volume which are removed from the trench, will be estimated as rock excavation. Before beginning rock excavation the contractor must procure a written order from the engineer. excavated material shall be considered and classed as ordinary excavation, except rock removed by special orders as above. Indurated gravel, loose or disintegrated rock, and materials of like character, in the opinion of the engineer, will not be classed as rock.

For rock excavated from trench \$3 per cubic yard will be allowed the contractor, and excavation classified as rock will not be included also as ordinary excavation

11. Blasting.—Before blasting the contractor must procure a written order from the

engineer.

Blasts shall be covered with heavy timbers chained together. Caps or other explosives shall in no case be kept in the same place in which dynamite or other explosives are stored; and, in general, the precaution against accidents from blasting shall be entirely satisfactory to the engineer. The contractor shall be liable for all damages

to persons or property caused by blasts or explosives.

12. Back filling.—The back filling must be brought up evenly on both sides of the sewer with the best material from the excavation, so that no unbalanced pressure shall be brought upon the masonry. It shall be spread in horizontal layers not exceeding 6 inches in depth before ramming, and thoroughly rammed to the top of the trench. No less than two men shall be employed in ramming for each shoveler engaged in replacing the back filling, which shall be compacted with iron-shod rammers, each weighing not less than 12 pounds. When the back filling is deposited, by means of wheelbarrows, carts or wagons, or by machinery, the ramming shall be done as directed by the engineer.

All slides or caving of sides of the trenches or cuts shall be taken out and back filled

by the contractor.



As the trench is refilled, the bracing, etc., shall be removed in such manner as to prevent the caving of sides of the trench. If sheeting is used, so much of it as extends below the crown of the arch of the basin must be withdrawn, unless otherwise directed by the engineer, after refilling over the haunches, but before more than 6 inches of earth is placed on the crown of arch and before the center is struck.

As the sheet planks are withdrawn the vacancies left by each shall be carefully refilled by ramming with tools especially adapted for the purpose, by watering or

otherwise, as may be directed.

13. Materials.—The contractor will be furnished at the District property yards with all the necessary sewer pipes, manholes steps, and cast-iron manhole tops with covers, the value of which material, actually used in the work, will not be charged against him. He will also be furnished at the District yards with all the cements, invert blocks and vitrified bricks required for the work, the value of which will be charged against him at the following rates: Portland cement, \$1.25 per barrel; invert blocks, 50 cents per linear foot; vitrified bricks, \$18 per thousand.

Where cement is furnished in bags, the bags will be returned by the contractor or

charged against him at the rate of 11 cents each.

The contractor shall convey materials from the points where they are delivered by the commissioners and store the same in the vicinity of the works. He shall be responsible for the loss incurred or damage done to said materials from the time of their delivery until the work is accepted. No materials shall be applied to other use than that for which they are issued.

The materials from the trenches and those used in constructing the sewer appurtenances shall be so deposited as not to hinder nor endanger public travel and so that free access may be had at all times to all fire plugs, water gates, manholes, and catch basins

in the vicinity of the work.

14. Concrete masonry.—Concrete masonry will be classified as follows:
Concrete masonry A will be composed of 1 barrel Portland cement (net weight 380 pounds), 8 cubic feet sand, 8 cubic feet pebbles, 8 cubic feet broken stone; water as directed by the engineer.

Concrete masonry B will be composed of 1 barrel Portland cement (net weight 380 pounds), 10 cubic feet sand, 10 cubic feet pebbles, 10 cubic feet broken stone; water

as directed by the engineer.

Concrete masonry C will be composed of 1 barrel Portland cement (net weight 380 pounds), 12 cubic feet sand, 12 cubic feet pebbles, 12 cubic feet broken stone; water as directed by the engineer.

Concrete masonry D will be composed of 1 barrel Portland cement (net weight 380 pounds), 8 cubic feet sand, 16 cubic feet pebbles; water as directed by the engineer.

Concrete masonry E will be composed of 1 barrel Portland cement (net weight 380

pounds), 10 cubic feet sand, 20 cubic feet pebbles; water as directed by the engineer. Concrete mesonry F will be composed of 1 barrel Portland cement (net weight 380

pounds), 12 cubic feet sand, 24 cubic feet pebbles; water as directed by the engineer. Suitable appliances, satisfactory to the engineer, for measuring the ingredients for each batch of concrete shall be kept on the line of the work.

15. Mixing concrete.—The thorough mixing and incorporation of all materials will be required. If done by hand labor, the dry cement and sand shall be mixed and turned over by skilled workmen with shovels not less than six times before the water is added; the pebbles and broken stone, after being wetted, shall be added to the mixed cement, sand, and water. The whole mass shall then be thoroughly turned over by skilled workmen with shovels, not less than four times, until every particle of stone is completely enveloped with mortar.

The whole operation of mixing and laying each batch shall be performed as expedi-

tiously as possible by the aid of machinery or a sufficient number of skilled men.

No concrete which has once set shall be used as metal for mixing a new batch.

16. Placing concrete.—The concrete shall not be thrown or dumped from a height, but must be lowered in a vessel and so carefully deposited as to retain the constituents evenly incorporated as mixed, entirely free from foreign matter of any kind.

In lowering material into the trenches care should be taken not to throw dirt upon freshly laid concrete or other masonry in place. At all stages and for all classes of work concrete and mortar must be kept as free as possible from dirt of every kind, and if unavoidably mixed with dirt shall be removed and replaced to the satisfaction of the engineer.

No concrete or other work shall be laid in water, and no water shall be thrown upon or allowed to flow over or rise upon masonry until the mortar has had ample

Each batch of concrete shall be spread in place in horizontal layers not exceeding 5 inches in thickness before ramming and shall be at once thoroughly compacted by ramming. Digitized by Google

When a layer of concrete has become set it will be carefully cleaned of all dirt or loose fragments and a thin layer of mortar spread thereon before depositing the fresh concrete.

Concrete shall not be used after it has begun to show evidences of setting.

17. Molds, etc.—Strong molds, forms, and centers satisfactory to the engineer, made to fit the curves and shapes of all work done under this contract, shall be provided by the contractor for each stage and section of the work, and when they lose their proper dimensions or shape they shall be replaced by others. Planking, forming the faces of all exposed walls, shall be so matched and placed as to give an even and uniform surface to the concrete. Before being used, the molds shall be scraped clean of cement and dirt. Their setting up, striking, and general management shall conform to directions given by the engineer. For concrete inverts, where brick lining is omitted, sheet steel, collapsible forms, must be used. All work must be specially smooth and well filled, and no plastering will be allowed.

When, in the opinion of the engineer, it is necessary to protect the masonry from injury, the sewer shall be braced inside without any additional charge. The bracing shall be done in a manner satisfactory to the engineer, and it shall be left in place

until he shall direct its removal.
18. Water.—Water used for mortar and concrete shall be fresh and clean, free from earth, dirt, or sewage, and shall be used in such quantity as the engineer may direct.

19. Sand.—Sand for concrete and sand for mortar shall be clean, sharp sand, containing both fine and coarse grains, free from mud, sewage, mica, or other foreign matter, and at least equal in desirable qualities to the samples in the property office, District of Columbia, marked "Sample of sand for paving and concrete" and "Sample of sand for brickwork and plastering," respectively.

20. Pebbles.—Pebbles shall be from the fine bank or river gravel, thoroughly screened, free from earthy or other foreign matter, and small enough to pass through a ring 1 inches in diameter, and shall not contain more than 5 per cent of material which shall

pass through a No. 10 sieve.

21. Broken stone.—Broken stone for concrete masonry must be hard and of durable character, the run of the crusher, and it shall not contain more than 1 per cent of materials passing a No. 10 sieve. It shall be thoroughly cleansed from all foreign substances, and, if so ordered by the engineer, it shall be screened and washed. Detritus or any material other than hard, angular fragments of stone shall be considered a foreign substance. Every piece of stone for concrete masonry must be small enough in largest dimension to pass through a ring 2 inches in diameter.

22. Mortar.—Mortar used in this work shall be composed of Portland cement in perfect condition and loose, dry sand in the proportion of 1 barrel of cement (net weight 380 pounds), and 9 cubic feet of mortar sand, thoroughly mixed dry, and a sufficient quantity of water afterwards added to make a rather stiff paste. It shall be used within an hour after the addition of the water, but no mortar shall be used after

having become hard or set.

23. Mixing mortar.—The thorough mixing and incorporation of all materials will be insisted upon. If done by hand labor, the dry cement and sand shall be turned over and mixed with shovels by skilled workmen not less than six times before the water is added.

24. Platforms.—Platforms shall be provided upon which all sand, pebbles, and broken stone shall be placed when brought upon the line of the work, and there kept

until used.

25. Mortar boxes.—Tight mortar boxes shall be provided by the contractor, and no mortar shall be made otherwise than in such boxes, except for concrete. No deposits

of sand or mixing of mortar will be permitted upon pavements.

26. Invert blocks.—Invert blocks shall be laid true to line and grade. A concrete bed of the required shape and dimensions shall first be prepared, and a layer of mortar one-half inch thick spread upon this bed. Upon this coat of mortar the blocks shall be laid, and each block shall be carefully pressed down and bedded upon the mortar, so as to insure a close contact throughout the bottom and back of surface of the blocks. The joints between consecutive blocks shall be full mortar joints and as close as practicable.

27. Vitrified bricks.—Each course of vitrified invert bricks shall be laid in full mortar joints truly on line, and the joints upon the face of the work shall not exceed

three-sixteenths inch in thickness.

28. Bricks.—Bricks used shall be of the best quality of whole new bricks, of uniform size, compact texture, burned hard and entirely through, with true surface, free from injurious cracks and flaws, tough and strong, and having a clear ring when struck together. They must have a crushing strength of not less than 4,500 pounds per square inch, and must not absorb more than 10 per cent of their weight of water after having been thoroughly dried and then immersed for 24 hours in water. Samples will be subject to such tests as may be satisfactory to the engineer.

The bricks used upon the work must at least equal in quality the sample bricks in the property office, District of Columbia.

The truest and smoothest bricks will be used in the face of the masonry. All bricks delivered for use shall be culled by the contractor when required. No bricks

rejected in the culling shall be used in any work done under this contract.

29. Brickwork.—Bricks must be thoroughly wet by immersion immediately before laying. Every course shall be laid with a line. Every brick must be thoroughly laid in full mortar joints on bottom, side, and end, which, for each brick, must be formed by one operation. In no case is the joint to be made by grouting, or by working in mortar after laying the brick. No joint shall exceed three-eighths inch in thickness. All joints on faces shall be trowel struck.

Brick masonry below the springing line in brick sewers must be well and firmly bedded upon the foundation prepared for it or upon the wall of the adjacent excavation, as the case may be; and all spaces which would otherwise exist between the outer lines of the sewer and the walls of the foundation or excavation must be filled

with hydraulic cement mortar, concrete, or brick masonry, as may be directed.

All unfinished brick masonry must be "racked back" or toothed, as may be directed, and when new work is joined to the unfinished portion, the latter must be

thoroughly cleansed.

Brick masonry of sides and arches shall be bonded and keyed as directed, special care being exercised with each ring against laying too large joints at the back. All joints shall be normal to the section of the sewer and all "lipping" of brick must be carefully

30. Arches.—Concrete arches shall be allowed to set at least 24 hours before any back filling or other weight shall be put upon them, and no walking or working thereon

shall be allowed during said time.

31. Steel reinforcement.—Steel reinforcement, where required, will be furnished by the District of Columbia, and the contractor will be required to handle and place same as directed, for which he will be given an extra order as provided for in para-

graph No. 11 of the "General stipulations."

32. Plastering.—As soon as practicable after the "keying up" is completed the back of every arch of brick or concrete shall be thoroughly cleaned of dirt and loose or projecting mortar, and shall then be smoothly plastered, from the springing line to workmen, using tools satisfactory to the engineer. This coat shall be allowed to become fully set before any back filling is placed or walking allowed upon it.

33. Sewer pipe.—Sewer pipe will be of the ring or plain cylindrical pattern.

34. Laying sewer pipe.—Laying sewer pipe shall be executed in the following manner: The trench shall first be excavated by the use of the prescribed form to the

required depth, shape, and dimensions; concrete shall then be compactly rammed in the bottom to the required depth, and its upper surface brought to a plane lower than the grade of the sewer by thickness of the wall of the pipe. The pipe must be perfectly supported throughout its entire length upon its concrete bed; bringing the pipe to grade by means of stone, etc., will not be permitted. Concrete shall then be rammed upon the sides and haunches of the pipe to the full specified width and thickness, care being taken that no void spaces exist. The greatest care must be exercised that the alignment and grade of the pipes be not disturbed. The joints between the pipes shall be closed by pointing with stiff mortar, after which a layer of concrete shall be carried over them to a thickness of not less than 4 inches, and having a bottom width of not less than 12 inches. During the supposition of the work at night or other times of not less than 12 inches. During the suspension of the work at night or other times a suitable stopper shall be placed in the last pipe laid to prevent earth from washing in. No sand, mud, mortar, concrete, or other material shall be allowed on the inside of pipe sewers. Upon completion they must be left straight, clean, smooth, and in Mortar and concrete shall be allowed to set before every other respect acceptable. any back filling is placed or walking is allowed upon the sewer, and the greatest care must be taken not to disturb the pipes, haunching, and banding.

35. Manholes.—Brick manholes of the form shown on the drawing shall be constructed

in the sewers wherever ordered by the engineer.

In sewers of greater span than 3 feet the manholes shall spring from one side of the arch; in sewers having a span of 3 feet or less, the axis of the manholes shall be directly over the center of the sewer.

Connection for public and house sewers and catch basins shall be built into manholes

whenever required.

Each manhole shall have steps of wrought iron, built into brickwork, as shown on the drawings. Similar steps shall be built into the inverts of the sewers at the manholes as the brickwork progresses, as may be directed.

The contractor shall carefully and securely fit each manhole with a cast-iron frame and cover, as shown on the drawings.

36. Water-tight work.—Water-tight work is required in all construction.

37. Connections. Connections with existing sewers shall be made by the contractor according to directions given by the engineer. The right to permit the connection of any public or house sewer with a sewer under construction before completion of the

latter is expressly reserved to the commissioners.

38. Replacing.—When necessary to pump sewage in replacing and laying relief sewers, the material pumped shall be carried by means of hose or other water-tight conveyor to the sewer or manhole designated by the engineer, and it shall not be

allowed to flow into or over the surface.

39. Piling.—Piles are to be not less than 8 inches in diameter at the small end, of live timber, sound, straight and free from rot, large knots, wind shakes, and all other defects. They may be of pine, spruce, white oak, or such other durable timber as the engineer may approve. They are to be well and carefully driven with small end down, plumb and true to position, by a heavy hammer, delivering blows in rapid succession, to a penetration under the last blow of one-half inch for a hammer weighing 2,000 pounds, falling 12 feet.

Each pile shall be stripped of bark, all knots pared smooth, and shall have the lower end squared or pointed before the driving, as may be directed.

After driving, the pile shall be cut off so as to form a true and even bearing for the cap timber, which shall be fastened to each pile by a 2-inch treenail of white oak, Georgia or Florida pine, or hickory, or a 1-inch drift bolt driven through the cap and 10 inches into the head of the pile. Any pile split or otherwise injured in driving, or driven out of position will be replaced by a sound one in true position. The top of any pile shall not be drawn over more than 9 inches after driving to allow capping. Any pile which is driven a greater distance from its true position than 9 inches or whose penetration exceeds one-half inch under the last blow, will be rejected, and must be replaced by a pile driven adjacent thereto as directed by the engineer. While being driven, should a pile head become broomed or otherwise injured so as to prevent effective driving, the top shall be sawed off as directed. When necessary, in the judgment of the engineer, each pile shall be bound, while driving, with a strong iron band, of a proper size to protect the pile head. In all cases the pile must refuse for the penetration specified, with the top sufficiently above subgrade to permit cutting off all that portion of the piles split or otherwise injured in any way by the process of driving, when the pile is sawed off at subgrade. In no case will the use of a "follower" be permitted. The piles must be carefully sawed off by a horizontal cut at the required grade line. For piles rejected for any cause whatever no allowance will be made.

40. Lumber.—All lumber for use in the completed structure must be sound, straight grained, and free from sap, loose or rotten knots, wind shakes, or any other defect which would tend to impair its strength or durability; must be straight, of the dimensions given, with square edges, and uniform width and thickness throughout each piece. Each floor plank must be secured to each cap timber upon which it rests by two 6-inch spikes. All framing must be done in a thorough, workmanlike manner, and both material and workmanship will be subject to the inspection and approval of the

engineer.

41. Foreman.—The contractor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer

All foremen, mechanics, and others employed by the contractor shall be skilled in

the several parts which are given them to do.

42. Inspection.—The contractor shall, when requested, provide the engineer with such ladders, lanterns, tools, and labor, samples, and other facilities as may be neces-

sary for inspecting materials and work.

Imperfect materials or work which may be discovered shall be replaced or corrected immediately on the requirement of the engineer, notwithstanding that it may have been overlooked by the proper inspector, and included in a partial payment. Materials condemned or rejected by the engineer may be branded or otherwise marked, and shall on his demand be at once removed to a satisfactory distance from the work. Any omission to disapprove the work at the time of inspection, or at the time of any monthly or other estimate, shall not relieve the contractor of any of his obligations, and all work, of whatever kind, which during its progress and before it is finally accepted may become damaged or prove unacceptable for any cause, shall be removed by the contractor and replaced by good and satisfactory work. If not removed within 24 hours after written notice from the engineer, it shall be removed by that officer and the cost charged to the contractor and deducted from any amount due or which may become due him.

#### INSTRUCTIONS TO BIDDERS.

These instructions will become a part of the contract.

1. Signature.—Proposals must be signed by the bidder with the signature in full. When a firm is a bidder the agent who signs the firm name to the proposal shall state, in addition, the names of the individuals composing the firm. When a corporation is a bidder the person signing shall state under the laws of what State the corporation was chartered and the name and title of the officer having authority under the by-laws to sign contracts. The proposal shall also bear the seal of the corporation, attested by its secretary. Anyone signing the proposal as agent must file with it legal evidence of his authority to do so.

2. Address.—Post-office address, county, and State of the bidder must be written or printed after the signature, and such address is the one, in the absence of written directions to the contrary, to which notice of the award of contract may be mailed or delivered, but the said notice may be served on the bidder or any agent of the bidder.

3. Prices.—All prices must be written in words, as well as expressed in figures. In case of variation the written prices shall govern.

4. Identification of proposal.—Proposals will be placed in a sealed envelope so marked as to indicate its contents without being opened. This envelope will be placed in another addressed to the Commissioners of the District of Columbia, Washington, D. C.; if forwarded otherwise than by mail, it must be delivered to the secre-

tary to the board of commissioners.

5. Rejection of bids.—Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will cause the rejection of all proposals in which he is interested. The commissioners reserve the right to waive any informality in the proposals received and to reject any or all proposals or parts of a proposal and to make the award in such manner as they consider best for the interests of the District of Columbia. Proposals received after the time advertised for opening bids will be returned unopened. No proposal will be accepted from any failing bidder or contractor known as such on the records of the District of Columbia for 20 years prior to the date of bid. No telegraphic proposal will be considered.

6. Experience.—Bidders must present satisfactory evidence that they have been regularly engaged in the business of constructing such work as they propose to execute, and in case the lowest responsible bidder has never done any work for the District of Columbia he must, prior to the award of contract, be able to show work done by him within a distance of 1,000 miles from the District of Columbia and may be required to pay the necessary expenses of an inspection of such work by representa-tives of the District of Columbia, not exceeding two in number, as may be sent by the engineer to examine same.

7. Capital and plant.—Bidders must present satisfactory evidence that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for to the satisfaction of the Commissioners and to begin it

promptly when ordered.

8. Quaranty deposit.—Bidders will inclose a receipt of the collector of taxes for the District of Columbia, or a certified check payable to the said collector, or bond of an approved surety company for the amount named in the form of proposal. The amount will be deposited and held as a guaranty of good faith and as reasonable and liquidated damages and not as a penalty to the District of Columbia, and which they agree may be retained as liquidated damages in the event of their failure to enter into contract, with good and sufficient sureties, within 10 days after notification of acceptance of their proposal.

9. Laws affecting public work.—The attention of bidders is invited to the "Act

regulating the retents on contracts with the District of Columbia, approved March 31, 1906":
"That on all contracts made by the District of Columbia for construction work there shall be held a retent of 10 per centum of the cost of such construction work as a guaranty fund to keep the work done under such contracts in repair, and that the terms of such contracts shall be strictly and faithfully performed. On contracts for the construction of asphalt, tar, brick, cement, or stone pavements the retent shall be held for a term of five years from the date of completion of the contract. contracts for the construction of bridges and sewers the retent shall be held for a period of one year from the date of completion of the contract. On contracts for the construction of buildings and other contracts for construction work the retent shall be held until the completion of the work. All retents for one year or more shall be deposited with the Treasurer of the United States as now required by law."

Also the following clause of the act of March 3, 1887:

"That the Treasurer of the United States, as commissioner of the sinking fund of the District of Columbia, shall not be compelled hereafter to invest money retained

from District contracts hereafter entered into; but may in his discretion, retain said funds without interest or invest the same in any class of United States or District of Columbia bonds, at the request and at the risk of the contractor, whenever the sum retained on any contract shall reach the sum of \$100 or more; any sum less than

\$100 shall be retained without interest as above."

Also to Public Act No. 82, approved February 28, 1899, relative to payment of claims for material and labor furnished for District of Columbia buildings.

Also to act of Congress relating to limitation of the hours of daily service of laborers and mechanics employed upon the public work of the United States or the District of Columbia, approved August 1, 1892, as modified by acts of Congress approved February 27, 1906; June 30, 1906; and March 3, 1913.

All laws and regulations of the United States and of the District of Columbia, especially in so far as they relate to the protection of life and property, are to be

strictly observed.

10. Breach.—No waiver of any breach of the contract shall constitute a waiver of

any subsequent breach of any part thereof nor of the contract.

11. Return of deposits.—Bidders' deposits will be returned, on application to the chief clerk, engineer department, to unsuccessful bidders after award of contract is

made and to successful bidders after execution of contract.

12. Sundays or legal national holidays.—No work shall be done on Sundays or legal national holidays, except in cases of emergency, and then only with the consent of the engineer, nor shall any work be done at night unless authorized in writing by the engineer.

-Changes, alterations,, or interlineations must be explained by foot-13. Changes.-

note in proposal.

14. Withdrawal.—If a bidder wishes to withdraw his proposal, he may do so before the time fixed for the opening, without prejudice to himself, by communicating his purpose in writing to the secretary to the board of commissioners, and when reached, it will be handed to him or to his authorized agent unread.

15. Eight-hour law.—The following provision made in accordance with Public Act of Congress No. 199, approved June 19, 1912, is made a part of this contract.

"No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work under a penalty for each violation of this provision of \$5 for each laborer or mechanic for every calendar day in which he shall be required or permitted to labor more than eight hours upon said work."

It shall be the duty of the inspector or inspectors or other employees of the District of Columbia, upon observation or investigation, forthwith to make report to the Commissioners of the District of Columbia of all violations of the provisions of this paragraph and of said act, together with the name of each laborer or mechanic who has been required or permitted to labor in violation of the provisions hereof, the day or days of such violation, and the amount of penalties accruing under the provisions hereof by reason of such violation. This sum shall be withheld for the use and benefit of the District of Columbia by the auditor of the District of Columbia out of any money due the contractor, whether the violation is by the contractor or any subcontractor. Any contractor or subcontractor aggrieved by the withholding of any penalty as hereinbefore provided shall have the right within six months thereafter to appeal to the Commissioners of the District of Columbia, who shall have the power to review the action imposing the penalty, and in all such appeals from such final order whereby a contractor or subcontractor may be aggrieved by the imposition of the penalty hereinbefore provided such contractor or subcontractor may within six months after the decision of said commissioners file a claim in the Court of Claims, which shall have jurisdiction to hear and decide the matter in like manner as in other cases before said court.

Nothing in this provision shall be construed to repeal or modify the act of Congress relating to the limitation of the hours of daily service of laborers and mechanics employed upon the public works of the United States or the District of Columbia approved August 1, 1892, as modified by acts of Congress approved February 27,

1906, and June 30, 1906.

#### GENERAL STIPULATIONS.

These stipulations will become a part of the contract.

1. Transfers.—No contract or any interest therein shall be transferred by the parties to whom the award is made; such transfers will be null and void, and will cause the contract to be annulled and the work to be given to other parties under the conditions mentioned herein.

2. Patents.—The contractor will be required to hold the District of Golumbia harmless against all claims for the use of any patented article, process, or appliance in connection with the contract herein contemplated.

3. Contractor's risk.—All loss or damage due to negligence, or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, will be sustained by the contractor.

4. Employees.—The contractor shall employ capable superintendents or foremen

to represent him on the work, and they shall receive and obey orders from the engineer. He shall so conduct his operations as to intefere with the work of other District contractors as little as possible. Skilled laborers and mechanics only shall be

employed.

An employee or agent of the contractor who shall use profane or abusive language to the inspector, or otherwise impede or embarrass him in the performance of his duty, or who, in the opinion of the engineer, is careless or incompetent, or obstructs the progress of the work, or disobeys or evades the instructions given by the engineer, shall be immediately discharged and not again employed without the consent of

the engineer.

5. Weather.—The contractor shall suspend all work under the contract when notified to carrying it on.

by the engineer that the weather is unsuitable for carrying it on.

If work is allowed during cold or freezing weather, the contractor shall take such additional precautions as the engineer shall require, without additional expense, and under no circumstances shall materials be used which have been injured by

6. Inspection.—Inspectors may be appointed who shall have access to all parts of the work at all times, and whose duty it shall be to point out to the contractors any neglect or disregard of the specifications of contract; but the right of final rejection of the work will not be waived at any time. Upon all technical questions concerning the execution of the work, in accordance with the specifications and measurements thereof, the decision of the engineer shall be final. Ordinarily one inspector will be employed by the District of Columbia for each section of the work under contract; but if, on account of any apparent disregard of the specifications, additional inspectors shall be required, they will be employed by the District of Columbia, at a rate not to exceed \$4.50 per diem each, and the cost of the same will be charged to the con-

tractor and deducted from any moneys due or that may become due to the contractor.

7. Condemned work.—All materials furnished and work done not in accordance with these specifications shall be removed within 24 hours after written notice from the engineer by and at the expense of the contractor, or, in case of failure to do so, it shall be removed by the District of Columbia and the cost thereof charged to the contractor and deducted from the amount due or which may become due him. None

but the best material of the several descriptions shall be used.

8. District material.—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the contractor. The contractor will be held responsible for all materials delivered to him upon requisition, and shall be charged for all materials delivered upon said requisition. Should the amount of material delivered exceed the amount used upon the work or otherwise properly accounted for, the cost to the District of the difference must be made good by the contractor, and will be deducted from any moneys which may be due him.

Any material that is the property of the District that is not accounted for by the

contractor will be charged against him at the contract price for similar material.

9. Delay.—Delay on the part of the District to furnish materials is not to give cause for claims for damages, but the time for completing the work may be extended on this account, as the engineer shall judge equitable, or, if, owing to excessive wet weather, severe cold, or other cause beyond the control of the contractor he is prevented from finishing his work in time, his contract may be extended by the com-

missioners without cost of inspection.

10. Failure.—Except as covered by paragraph 9, failure of the contractor to commence the work at the time specified or to prosecute it thereafter in a satisfactory manner and at a proper rate of progress, in the opinion of the commissioners, to insure its completion in the time specified, or any other breach of any covenant made by the contractor, will be authority for the commissioners to suspend the contractor from the work and employ other parties to complete it, or to employ additional parties to assist in its completion, or to annul the contract. Upon the death of a contractor during the life of a contract his executors, administrators, or other personal representatives will be expected without further notice to prosecute the work to completion, and upon failure or neglect to do so within a reasonable period, in the opinion of the commissioners, to insure its completion within the stipulated time,



the said commissioners shall proceed as specified above in the case of failure of the contractor.

All moneys due the contractor or his estate at the date of failure will be applied to the conduct and maintenance of the work, and any excess of cost over and above the contract price will be charged against the contractor and sureties, who will each and severally be held liable therefor.

The commissioners may, if it is their opinion that such action will be to the advantage of the District, grant the contractor an extension of time, charging him with the cost of inspection at a rate not to exceed \$4.50 per diem for each inspector engaged

upon the work.

11. Extra work.—The contractor must be prepared to do any extra work that may be ordered in writing by the engineer arising out of any modification of the specifications that may appear necessary, and for this he will be paid at current contract rates for work of similar character; or, if the extra work should be of a class for which no rate is fixed by current contracts, the actual reasonable cost to the contractor, as determined by the engineer, plus 15 per cent. The contractor shall have no claim for compensation for extra work unless the same is ordered in writing by the engineer. All additional and extra work shall conform to current District of Columbia

specifications therefor.

12. Bond.—Good and sufficient bond in the penal sum not less than 25 per cent of the estimated amount of the contract, with sureties or a surety company satisfactory to the commissioners, will be required from all contractors, guaranteeing that their contract will be faithfully performed; that the contractor or contractors will be responsible for all claims for damages to persons, property, or premises arising out of his or their operations prior to the acceptance of the finished work, and that he or they will promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in the contract. In the event that the sureties or surety company becomes unsatisfactory to the said commissioners, they may in their discretion, require from the contractor an additional or new bond, in the same or lesser penal sum, with sureties or a surety company satisfactory to them and to be conditioned as above required. Upon the failure to furnish such additional or new bond within 30 days after written notice so to do, all payments under this contract will be withheld until such additional or new bond is furnished.

13. Payments.—Payments will be made monthly, provided the progress of the work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested as hereinbefore

provided.

14. Conveniences.—Necessary conveniences, properly secluded from public observation, shall be constructed whenever needed for the use of laborers on the work. (See the "Health department regulations.")

15. Cleaning up.—On the completion of work it shall be thoroughly cleaned up

before it will be accepted.

16. Lines.—All necessary lines and levels will be given by the engineer by means of suitable marks, and in establishing them the contractor shall provide such materials and assistance as may be required by the engineer. All marks given are to be carefully preserved, and if destroyed through carelessness the cost of replacing them shall be charged against the contractor at a fixed price of \$2 for each point, to

be deducted from any money found due at final settlement.

17. Interpretation.—Any doubt as to the meaning of these specifications will be explained by the engineer, who shall have the right to correct anyerrors or omissions in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "commissioners" is used in these specifications, it is understood to designate the Commissioners of the District of Columbia. Whenever the word "engineer" is used, it is understood to designate the Engineer Commissioner of the District of Columbia, or, in his absence, his duly authorized assistants, assistant engineers, and inspectors representing him, limited by the special duties intrusted to them.

#### FORMS ACCOMPANYING ALL SPECIFICATIONS.

#### GENERAL STIPULATIONS.

These stipulations are part of the specifications.

1. Bond.—Good and sufficient bond in the penal sum equal to at least 25 per cent of the estimated amount of the contract, with sureties or a surety company satisfactory to the commissioners, will be required from all contractors, guaranteeing that their contract will be faithfully performed; that the contractor or contractors will be respon-

sible for all claims for damages to persons, property, or premises arising out of his or their operations prior to the acceptance of the finished work, and that he or they will promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in the contract. In the event that the sureties or surety company become unsatisfactory to the said commissioners, they may in their discretion require from the contractor an additional or new bond, in the same or a lesser penal sum with sureties or a surety company satisfactory to them and to be conditioned as above required.

Upon the failure to furnish such additional or new bond within 30 days after written notice so to do, all payments under this contract will be withheld until such addi-

tional or new bond is furnished.

2. Transfers.—No contract or any interest therein shall be transferred by the parties to whom the award is made; such transfers will be null and void, and will cause the contract to be annulled and the work to be given to other parties under the conditions

mentioned herein.

3. Patents.—The District of Columbia assumes all responsibility under this specification and contract as to any claim which may be made that any process prescribed in these specifications is an infringement of any patent covering pavement construction and will defend and save harmless the contractor as to any such claim or the defense thereof in the courts: Provided, however, That the District of Columbia shall not be liable for claims for damages or anticipated profits preferred by the contractor on account of delay, interruption, or abandonment of the work occasioned by or resulting from such claim of infringement as is above referred to. The contractor, however, will be required to hold the District of Columbia harmless against all or any claims for the use of any patented article, appliance, or process in connection with the contract herein contemplated except as related above.

tract herein contemplated except as related above.

4. Contractor's risk.—All loss or damage due to negligence or arising out of the nature of the work to be done or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the

elements will be sustained by the contractor.

5. Employees.—The contracor shall employ capable superintendents or foremen to represent him on the work, and they shall receive and obey orders from the engineer. He shall so conduct his operations as to interfere with the work of other District contractors as little as possible. The foreman, mechanics, and others employed by the contractor shall be skilled in the several parts which are given them to do.

An employee or agent of the contractor who shall use profane or abusive language to the inspector or otherwise impede or embarrass him in the performance of his duty, or who, in the opinion of the engineer, is careless or incompetent or obstructs the progress of the work or disobeys or evades the instructions given by the engineer shall be immediately discharged and not again employed without the consent of the engineer.

6. Weather.—The contractor shall suspend all work under the contract when notified

by the engineer that the weather is unsuitable for carrying it on.

If work is allowed during cold or freezing weather, the contractor shall take such additional precautions as the engineer shall require without additional expense, and under no circumstances shall materials be used which have been injured by the weather.

7. Inspection.—Inspectors may be appointed who shall have access to all parts of the work at all times and whose duty it shall be to point out to the contractors any neglect or disregard of the specifications of the contract; but the right of final rejection of the work will not be waived at any time. Upon all technical questions concerning the execution of the work, in accordance with the specifications and the measurements thereof, the decision of the engineer shall be final. Ordinarily one inspector will be employed by the District of Columbia for each section of the work under contract; but if, on account of any apparent disregard of the specifications, additional inspectors shall be required they will be employed by the District of Columbia at the rate not to exceed \$6 per diem each, and the cost of same will be charged to the contractor.

8. Condemned work.—All materials furnished and work done not in accordance with these specifications shall be removed within 24 hours after written notice from the engineer, by and at the expense of the contractor, or in case of failure to do so it shall be removed by the District of Columbia and the cost thereof charged to the contractor and deducted from the amount due or which may become due him. None but the

best material of the several descriptions shall be used.

9. District material.—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the contractor. The contractor will be held responsible for all materials delivered to him upon requisition and shall be charged for all materials delivered upon said requisition. Should

the amount of materials actually delivered and not properly accounted for exceed the amount used upon the work, the cost to the District of the differences must be made good by the contractor and will be deducted from any moneys which may be due him.

Any material that is the property of the District that is not accounted for by the contractor to the satisfaction of the engineer will be charged against the contractor at

the contract price for similar material

10. Failure.—If the contractor shall delay or fail to commence with the delievry of the material or the performance of the work as specified herein or shall, in the judgment of the Commissioners of the District of Columbia, fail to prosecute faithfully and diligently the work in accordance with the specifications and requirements of this contract, then, in either case, the said commissioners shall have the power to annul this contract by giving notice in writing to that effect to the contractor, and upon the giving of such notice all payments to the contractor under this contract shall cease, and all money or reserved percentage due or to become due thereunder shall be retained by the said commissioners until the final completion and acceptance of the work herein stipulated to be done; and the said commissioners shall have the right to recover from the contractor whatever sums may be expended by the District of Columbis in completing the said contract in excess of the price herein stipulated to be paid the contractor for completing the same, and also all costs of inspection and super-intendence, including all necessary traveling expenses connected therewith, incurred by the said District of Columbia, in excess of those payable by the said District of Columbia during the period herein allowed for the completion of the contract by the contractor, and the said commissioners may deduct all the above-mentioned sums out of or from the money or reserved percentage retained as aforesaid; and upon the giving of the said notice the said commissioners shall be authorized to receed to secure the performance of the work or delivery of the materials, by contract or otherwise, in accordance to law.

11. Payment.—Payments will be made monthly, provided the progress of the work is satisfactory, less 10 per cent of each estimate, to be withheld until final payment; but 10 per cent of the cost of the work will be retained and invested as hereinbefore

provided.

12. Conveniences.—The contractor shall provide, for use of the District inspectors stationed at paving plant, suitable office and testing room with such plain furniture as may be necessary for the proper transaction of their business as agents for the District. They shall also furnish, when needed for use of laborers on line of work, necessary toilet conveniences secluded from public observation.

13. Cleaning up.—On the completion of work it shall be thoroughly cleaned before

it will be accepted.

14. Lines.—All necessary lines and levels will be given by the engineer by means of suitable marks, and in establishing them the contractor shall provide such materials and assistance as may be required by the engineer. All marks given are to be carefully preserved, and if destroyed through carelessness the cost of replacing them shall be charged against the contractor at a fixed price of \$2 for each point, to be deducted from any money found due at final settlement.

15. All loss or damage due to negligence or arising out of the nature of the work to be done, or from any unforeseen or unusual obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the elements, will be sustained by the contractors.

16. Interpretation.—Any doubt as to the meaning of these specifications will be explained by the engineer, who shall have the right to correct any errors or omissions in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "commissioners" is used in these specifications, it is understood to designate the Commissioners of the District of Columbia. Whenever the word "engineer" is used, it is understood to designate the Engineer Commissioner of the District of Columbia, or, in his absence, his duly authorized assistants, assistant engineers, and inspectors representing him, limited by the special duties intrusted to them.

#### INSTRUCTIONS TO BIDDERS.

1. Signature.—Proposals must be signed by the bidder with the signature in full. When a firm is a bidder, the agent who signs the firm name to the proposal shall state, in addition, the names of the individuals composing the firm. When a corporation is a bidder, the person signing shall state under the laws of what State the corporation was chartered, and the name and title of the officer having authority under the by-laws to sign contracts. The proposal shall also bear the seal of the corporation, attested by its secretary. Anyone signing the proposal as agent must file with it legal evidence of his authority so to do.

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2. Address.—Post-office address, county, and State must be given after the signature. 3. Prices.—All prices must be written in words as well as expressed in figures. In

case of variation the written prices shall govern.

4. Identification of proposal.—Proposals will be placed in a sealed envelope, so marked as to indicate its contents without being opened. This envelope will be placed in another addressed to the Commissioners of the District of Columbia, Washington, D. C.; if forwarded otherwise than by mail it must be delivered to the secretary to the board of commissioners.

5. Rejection of bids.—Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will cause the rejection of all proposals in which he is interested. The commissioners reserve the right to waive any informality in the proposals received, and to reject any or all proposals, or parts of a proposal, and to make the award in such manner as they consider best for the interests of the District of Columbia. Proposals received after the time advertised for opening bids will be returned unopened. No proposal will be accepted from any failing bidder or contractor known as such on the records of the District of Columbia within 20 years prior to the date of bid. No telegraphic proposal will be considered.

6. Experience.—Bidders must present satisfactory evidence that they have been regularly engaged in the business of constructing such work as they propose to execute, and in case the lowest responsible bidder has never done any work for the District of Columbia, he must, prior to the award of the contract, be able to show work done by him within a distance of 1,000 miles from the District of Columbia, and may be required to pay the necessary expenses of an inspection of such work by such representatives of the District of Columbia, not exceeding two in number, as may be sent by the

engineer to examine it.

7. Site of work.—The bidder is expected to examine the site of work before bidding, as no allowance will be made for any unusual difficulties which may arise, either

affecting the original construction or maintenance of the finished work.

8. Capital and plant.—Bidders must present satisfactory evidence that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for to the satisfaction of the commissioners, and to begin it

promptly when ordered.

9. Guaranty deposit.—Bidders will inclose a receipt of the collector of taxes of the District of Columbia for the amount named in the form of proposal as a guarantee of good faith, and as reasonable fixed and liquidated damages, and not as a penalty, to the District of Columbia, and which they agree to forfeit in the event of their failure to enter into contract, with good and sufficient sureties, within 10 days after notification of acceptance of their proposal.

10. Return of deposits.—Bidders' deposits will be returned on application to the chief

clerk, engineer department, to unsuccessful bidders after award of contract is made

and to successful bidders after execution of contract.

 Sundays or legal holidays.—No work shall be done on Sundays or legal holidays, except in cases of emergency, and then only with the consent of the engineer, nor shall any work be done at night unless authorized in writing by the engineer.

12. Changes.—Changes, alterations, or interlineations must be explained by foot-

note in proposal.

13. Withdrawals.—If a bidder wishes to withdraw his proposal, he may do so before the time fixed for the opening, without prejudice to himself, by communicating his purpose in writing to the secretary to the board of commissioners, and when reached, it shall be handed to him or to his authorized agent unread.

14. Breach.—No waiver of any breach of the contract shall constitute a waiver of any

subsequent breach of any part thereof, nor of the contract.

15. Laws affecting public work.—The attention of bidders is invited to the "Act regulating the retents on contracts with the District of Columbia, approved March 31, 1906."
"That on all contracts made by the District of Columbia for construction work there

shall be held a retent of ten per centum of the cost of such construction work as a guaranty fund to keep the work done under such contracts in repair, and that the terms of such contracts shall be strictly and faithfully performed. On contracts for the construction of asphalt, tar, brick, cement, or stone pavements the retent shall be held for a term of five years from the date of completion of the contract. On contracts for the construction of bridges and sewers the retent shall be held for a term of one year from the date of completion of the contract. On contracts for the construction of buildings, and other contracts for construction work, the retent shall be held until the completion All retents for one year or more shall be deposited with the Treasurer of the work. of the United States as now required by law."



Also the following clause of the act of March 3, 1887:
"That the Treasurer of the United States, as commissioner of the sinking fund of the District of Columbia, shall not be compelled hereafter to invest money retained from District contracts hereafter entered into; but may, in his discretion retain said funds without interest, or invest the same in any class of United States or District of Columbia bonds, at the request and at the risk of the contractor, whenever the sum retained on any contract shall reach the sum of \$100 or more; any sum less than \$100 shall be retained without interest as above."

Also to Public Act No. 82, approved February 28, 1899, relative to payment of claims for material and labor furnished for District of Columbia buildings, and to the public act relating to the limitation of the hours of daily service of laborers and mechanics upon the public works of the United States and the District of Columbia.

All laws and regulations of the United States and of the District of Columbia, especially in so far as they relate to the protection of life and property, are to be strictly observed

16. Eight-hour law.—The following provision made in accordance with act of Congrees, Public No. 199, approved June 19, 1912, is made a part of this contract.

"No laborer or mechanic doing any part of the work contemplated by this contract in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work under a penalty for each violation of this provision of \$5 for each laborer or mechanic for every calendar day in which he shall be

required or permitted to labor more than eight hours upon said work.

"It shall be the duty of the inspector or inspectors or other employees of the District of Columbia, upon observation or investigation forthwith to make report to the Commissioners of the District of Columbia of all violations of the provisions of this paragraph and of said act together with the name of each laborer or mechanic who has been required or permitted to labor in violation of the provisions hereof, the day or days of such violation, and the amount of penalties accruing under the provisions hereof by reason of such violation. This sum shall be withheld for the use and benefit of the District of Columbia by the auditor of the District of Columbia out of any money due the contractor, whether the violation is by the contractor or any subcontractor. Any contractor or subcontractor aggrieved by the withholding of any penalty as herein-before provided shall have the right within six months thereafter to appeal to the Commissioners of the District of Columbia who shall have the power to review the action imposing the penalty, and in all such appeals from such final order whereby a contractor or subcontractor may be aggrieved by the imposition of the penalty hereinbefore provided such contractor or subcontractor may within six months after the decision of said commissioners file a claim in the Court of Claims, which shall have jurisdiction to hear and decide the matter in like manner as in other cases before said court.

Nothing in this provision shall be construed to repeal or modify the act of Congress relating to the limitation of the hours of daily service of laborers and mechanics employed upon the public works of the United States or the District of Columbia, approved August 1, 1892, as modified by acts of Congress approved February 27, 1906, June 30, 1906, and March 3, 1913.



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